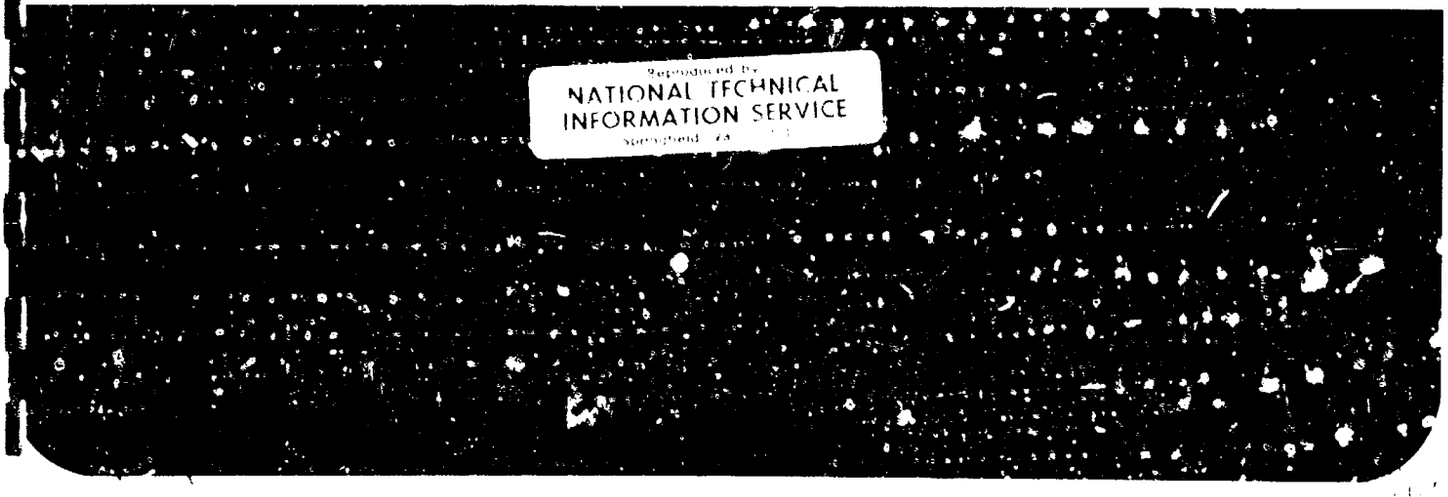
DEVELOPMENT AND PRESENTATION OF A NATIONAL WAR COLLEGE ELECTIVE COURSE TO DEMONSTRATE THE USE OF QUANTITATIVE TECHNIQUES IN THE STUDY OF INTERNATIONAL RELATIONS

VOLUME II
WORKSHOP MANUALS

CONSOLIDATED ANALYSIS CENTERS INC.



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INTRODUCTION

Under a project sponsored by the Behavioral Sciences Office of the Advanced Research Projects Agency, Consolidated Analysis Centers Inc. has assembled into a three-volume set the materials for a course "Quantitative Methods in International Relations." The central objective of the course is to describe the use of quantitative techniques to the students and then to provide computer workshops in which they may explore problems using those techniques. The major areas, data-file analysis and simulation, are covered. The course is organized into twenty 2-hour class periods according to the outline shown in Table 1.

Volume I of the course package includes a description of the course organization, the objectives, lists of readings, and discussion questions for each class period.

This second volume contains material to be given to the students for their use in the computer workshops. It is divided into two principal parts:

- the Student Manual for Data-File Analysis, and
- the Student Manual for Simulation

The third volume is intended to provide guidance for the instructor in handling the computer workshops.

Table 1 Course Outline

Section I. Perspectives: The Role of Analysis in International Politics

Session	Activity	Subject
1	Lecture:	Data and the International Policy-Maker
2	Lecture:	The Utilization of Quantitative Research in Policy Analysis: Past Examples and Future Prospects
3	Lecture:	Data, Computers, and Research Design

Section II. The Analysis of Quantitative Data

4	Lecture:	Introduction to Data-File Operations
	Workshop:	Display and Examination of Data
5	Lecture:	Concepts of National Power
6	Workshop:	Quantitative Aspects of National Power
7	Lecture:	Theories of Conflict and War
8	Lecture:	Inferential Statistics and Regression
	Lecture:	Presentation of a Class Exercise: The Middle-East Conflict Problem
9	Workshop:	Quantitative Investigation of U.S. Policy Objectives and Actions in the Middle East
10	Discussion:	Results of Class Work on the Middle-East Problem
11	Lecture:	International Alliances
12	Workshop:	Quantitative Investigation of the Effect of a Crisis on Alliances
13	Discussion:	Results of Class Work on the Alliance Problem

Table 1 (Continued)

Section III. Simulation

Session	Activity	Subject
14	Lecture:	Introduction to Simulation
15	Lecture:	Simulation and Planning: Presentation of NEXUS (National Executive Utility Simulation)
	Workshop:	Student Play of NEXUS
16	Lecture:	Presentation of PRINCE (Programmed International Computer Environment)
	Workshop:	Student Play of PRINCE
17	Workshop:	Student Play of PRINCE
18	Lecture:	Analytical Basis of the PRINCE Model
	Discussion:	Post-Game Critique of PRINCE
19	Lecture:	Summary and Critique of Simulation
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PURPOSE OF THIS MANUAL

The first thirteen class periods of this course will be devoted to the general subject of data-file analysis in the study of international politics. In the computer workshop, a set of selected international relations data-files will be made available for your use. This manual provides instructions for accessing and analyzing these data-files, which are currently stored at the University of Michigan computer center. The first part of the manual gives instructions for accessing the data by remote terminals from your classroom.

The second part of this manual describes and illustrates the use of two advanced* statistical packages developed at the University of Michigan. Each package is designed for the analysis of a specific type of data-file. Calling for any one of the data-files automatically makes the appropriate statistical package available.

The third part of the manual describes in detail the structure and contents of the four data-files selected for these workshops. Two of the data files, WEISDAT/T and WEISAL/T, are subsets of a larger collection undertaken by the World Event/Interaction Survey at the University of Southern California, under the direction of Charles A. McClelland. the CAIR data set was constructed by Raymond Tanter and Charles Taylor at the University of Michigan. The data in the MIDEAST/T file were collected by Jeffrey Milstein of Yale University.

*i.e., technically advanced, but designed to be very easy for the student to use.

INSTRUCTIONS FOR TERMINAL OPERATIONS

Signing-On

The following steps will connect the terminal to the University of Michigan computer and allow you to use the data files.

1. Place the terminal on "full-duplex."
2. To call the computer, push the ORIG button* and dial:

   (313) 763-1500

   The computer will answer with a few lines of output at the terminal.
3. Type:

   SIG and a carriage return to initiate the sign-on sequence. The computer will respond:
   MTS: ANN ARBOR (DC ------)
4. Enter:

   SIG XXXX

   where XXXX is a four-letter account designation to be assigned to each student or student team. End each line of terminal input by striking the carriage return key. The computer will then request a password.
5. Enter the password assigned by the instructor. The computer will respond with a few lines of information—time, date, etc.
6. Any of the available data files may now be called by typing:

   SOURCE IDAB:ZZZZ

   where ZZZZ is the name of the data file.**

---

*If the terminal has no ORIG button, but is connected to a telephone receiver cradle, dial the University of Michigan telephone number and place the receiver in the cradle when you hear a high-pitched tone. Make sure that the terminal is turned to LINE position before you dial the computer.

**The names of the four available data files are WEISDAT/T, CAIR, MIDEAST/T, and WEISAL/T.

(Note: The above instruction will be used by all students to access the data files, since all files are stored under the user-designation IDAB.)

Several lines of output will be printed, ending with the question:

WHICH COMMAND?

7. The user is now ready to begin analysis of the data file. Further instructions will be given in the section on Statistical Packages.

An example of the sign-on procedure is given below. In this example, the user account designation is IDAB, the password is NWCACI, the name of the data file is CAIR. User provided input is underlined.

```
%LDO5:SIG

  MTS : ANN ARBOR (DC07-0092)
#SIG IDAB
#ENTER USER PASSWORD.
?NWCACI
#**LAST SIGNON WAS: 10:07.24   02-12-71
#  USER "IDAB" SIGNED ON AT  11:11.44 ON 02-12-71
#SOURCE IDAB:CAIR
#SET SYMTAB=ON
#$RUN STAT:CONSTAT 9=*DUMMY* SCARDS=IDAB:CAIR(4) SPRINT=LURCH(1,8)

#EXECUTION BEGINS

  WHICH COMMAND?
```

Correcting Errors

Errors in input may be corrected from the terminal.

Individual Characters. Entering "CONTROL H"* will delete the character immediately preceding it. An arrow pointing to the left will appear for each "CONTROL H" typed, signifying deletion of the preceding character

*A CONTROL character is entered by depressing the CONTROL key while striking another key; in this case, H.

or characters, For example:

CORP ← R or GORR ←← ← ← CORR

would send to the computer the correct command:

CORR

Entire Lines. Striking the RUBOUT key will delete the entire line. A pound sign will appear, signifying deletion of the line. For example:

GORR#
CORR

would send to the computer only the correct second line.

Commands. The execution of a statistical routine may be terminated by typing "CONTROL E." The computer will respond with:

WHICH COMMAND?

and the user may designate the next desired routine.

Signing-Off

After completing the execution of each routine requested by a user, the computer inquires:

WHICH COMMAND?

When the user wishes to terminate computer operations by signing-off, he responds:

FINI

and two lines later:

$SIG

---

*A CONTROL character is entered by depressing the CONTROL key while striking another key; in this case, H.

The Computer Center provides a summary of his computer usage for the session.

An example is shown below. User provided input is underlined.

```
  WHICH COMMAND?
 FIN
#EXECUTION TERMINATED
#$SOURCE  *MSOURCE*
#$SIG
#OFF AT 11:29.14     02-12-71
#ELAPSED TIME          3.5    MIN.                    $.19
#CPU TIME USED        13.73   SEC.                   $1.47
#CPU STOR VM1         14      PAGE-MIN.               $.06
#WAIT STOR VM1         1.307  PAGE HR.
#DRUM READS           87
#APPROX. COST OF THIS RUN IS     $2.57
#DISK STORAGE          1.316  PAGE-HR.
#CELL STORAGE          2.6    PAGE-HR.
#APPROX. REMAINING BALANCE:    $156.80
```

STATISTICAL PACKAGES: CONSTAT and TIMESERIES

In this manual, a "statistical package" refers to a set of computer routines used for the display and analysis of data. During this course, the two packages, CONSTAT and TIMESERIES, will be used. Both were developed at the University of Michigan for use by students with no previous computer experience.

Each package was designed for one of the two basic data-file types: CONSTAT, for a set of data taken at one point in time (e.g., 1970 population figures for all European countries) and TIMESERIES for data collected over a period of time ("timeseries" data; e.g., annual GNP figures for the Middle East Countries from 1948 to 1967).

Three of the available data files (WEISDAT/T, MIDEAST/T and WEISAL/T) are timeseries files. Calling for any one of them automatically makes the TIMESERIES package available to the user. One of the files (CAIR) is a non-timeseries file. Specifying the CAIR data set calls up CONSTAT.

Display and analysis routines available in the CONSTAT package are shown in Table 1; those available in the TIMESERIES package are shown in Table 2. Steps in executing any of these routines are:

- Initiate execution of the CONSTAT, or TIMESERIES, package by specifying the desired data set (see Instructions for Terminal Operations).
- Respond to the question "WHICH COMMAND?" by typing the four-letter name of the statistical analysis routine chosen from Table 1 or Table 2.
- Respond to questions asking which variables are to be selected for analysis by typing the variable index numbers (see Tables 3, 5, 7 and 9 for the variable index numbers of the four data files).

- The TIMESERIES package will ask for the selected time-points. Respond by typing "ALL" or a contiguous set of time-point index numbers (each alternative is demonstrated in the section Examples of Analysis Through TIMESERIES).

Examples of using CONSTAT follow Table 1; examples of using TIMESERIES follow Table 2.

Table 1

STATISTICAL AND DATA-DISPLAY ROUTINES
OF THE CONSTAT PACKAGE*

Routine	Description
HIST	Used to produce a histogram showing the distribution of nations in the CAIR data file on the selected variable
PLOT	Used to produce a scatter-plot of one variable against another
CORR	Used to compute a product-moment correlation coefficient between two variables
GROU	Used to group nations into regions for analysis of subsets of nations rather than all nations
REGR	Used to produce a least-squares equation with one or more variables predicting the values of another variable; multiple correlation coefficients also are produced
PCOR	Used to check for spurious correlation between two variables by performing partial correlation
DESC	Used to produce descriptive statistical measures including mean, variance, and standard deviation for all variables in the data file

*Used with the "CAIR" Data File.

Examples of Analysis through CONSTAT

In the examples below, a series of analyses are performed on the CAIR data file.*

- HIST

  The terminal will ask for a specification of the number of intervals desired in the histogram. In the example below of a histogram for GNP per capita, only eight intervals were requested (although up to twenty intervals could have been specified). The lines typed by the student are underlined.

```
 WHICH COMMAND?
HIST
 HISTOGRAM ON WHICH VARIABLE?
5
 HOW MANY INTERVALS? (MAX=20)
8
 HISTOGRAM OF GNP/CP      NO. OF OBSERVATIONS=      135
                  I---------+---------+---------+---------+
   38.200000      +
              91  I**************************
   480.23750      +
              17  I*****
   922.27500      +
               8  I**
   1364.3125      +
               5  I*
   1806.3500      +
               8  I**
   2248.3875      +
               4  I*
   2690.4250      +
               0  I
   3132.4625      +
               2  I
   3574.5000      +
                  I---------+---------+---------+---------+
                  0         30        60        90        120
```

*Examples of all routines in Table 1, except DESC, are given. There is no way to select particular variables to be described by DESC--descriptions of all variables will be printed if this command is given.

- PLOT

The student's input is underlined in the example of the procedure for requesting a scatter-plot.

```
WHICH COMMAND?
PLOT
ENTER VARIABLE INDICES IN THE FORM: HORIZ. VAR.,VERT. VAR.
5,17
PLOT OF GNP/CP (HORIZ.) VS. DEFN $ (VERT.)    NO. OF OBS.=      121
            I+---------+---------+---------+---------+
   266.4    +                                        1
            I
            I
            I
   222.0    +
            I
            I
            I
   177.6    +
            I                1
            I
            I
   133.2    +
            I               1
            I                    1       1
            I                     1
   88.82    +                 1   1
            I                      1     1
            I                     1                1
            I           1  1  1  1   1 1
   44.41    +                      1
            I  1 2       2      1  1
            I 14 123112
            I17562 2111 1  1
0.4883D-     XF6413 1                   1
            -+---------+---------+---------+---------+
          43.60               1809.              3574.
                    926.3               2692.
```

Note the alphabetic characters in the lower left-hand margin of the plot. An alphabetic character is typed when the actual number of cases at that point is above 9. Thus, an "A" would represent 10 cases, a "B" would represent 11 cases, etc. Any point at which more than 16 cases lie receives an "X".

- CORR

  The correlation coefficient measures the strength of relationship between two variables. It ranges between -1.0 (indicating a perfect inverse relationship between the two variables) and +1.0 (indicating a perfect positive relationship between the two variables). A coefficient of 0.0 indicates the absence of any relationship between the two variables. Below, GNP per capita (variable 17) and Defense Expenditures per capita (variable 17) are correlated. The student's input is underlined.

```
WHICH COMMAND?
CORR

ENTER INDICES OF VARIABLES FOR WHICH YOU WANT CORRELATIONS,
OR ENTER "ALL".
5,17

CORRELATIONS

  121 OBSERVATIONS


VARIABLE

GNP/CP          1.0000

DEFN $          0.7775    1.0000

                GNP/CP    DEF. $
```

The correlation between Defense Expenditure per capita and GNP per capita is +.775 when all the nations in the CAIR data set are taken into consideration. A minus sign appearing before the coefficient would signify an inverse relationship.

- GROU

  Variable 2 of the CAIR data file consists of regional codes for each nation. It is possible to group the nations for analysis by specifying "cut points" in the regional codes. The regional codes are found in the section Description of the CAIR Variables. In the following example of the grouping procedure, three groups of nations were defined, the second of which consists only of African nations.

```
 WHICH COMMAND?
GROU

 HOW MANY GROUPS ARE TO BE DEFINED?
3

 ENTER 1 IF GROUPING BY SAMPLE SIZE
       2 IF BY VARIABLE
2

 ENTER GROUPING VARIABLE INDEX
2

 ENTER  2 CUT POINTS
7.5,8.5

 GROUP     CASES
    1         91
    2         42
    3          3
```

Group one consists of all nations having region codes below 7.5; group two consists of nations having a region code between 7.5 and 8.5; group three contains nations having region codes above 8.5. The African nations, which have region codes of 8, have been isolated as group number two. Having isolated the African nations as one group, it is now possible to repeat the correlation procedure for only this group of nations, as follows:

```
 WHICH COMMAND?
CORR

 WHICH GROUPS?
2

 ENTER INDICES OF VARIABLES FOR WHICH YOU WANT CORRELATIONS,
 OR ENTER "ALL".
5,17

 CORRELATIONS

    36 OBSERVATIONS

 VARIABLE

 GNP/CP          1.0000

 DEFN $          0.8879    1.0000

                 GNP/CP    DEFN $
```

Note that once the nations have been grouped for analysis, the student will be asked which group he wants to perform his next analysis on. To regroup all of the nations together again, repeat the grouping procedure but request only one group, and type the "return" key when requested to enter cut points, as in the following example.

```
 WHICH COMMAND?
GROU
 HOW MANY GROUPS ARE TO BE DEFINED?
1
 ENTER 1 IF GROUPING BY SAMPLE SIZE
       2 IF BY VARIABLE
2
 ENTER GROUPING VARIABLE INDEX
2
 ENTER  0 CUT POINTS

 GROUP     CASES
    1        136
```

- REGR

In a regression equation one variable is expressed as a function of another variable or series of variables. The general form of regression equation which is computed by the CONSTAT regression program is

$$Y = a + bX$$

where Y is the "dependent" variable whose values are a function of X, the "independent" variable. "a" is a constant and "b" is a multiplier of X.

In the following example, Defense Expenditures per capita (variable 17) was specified as the dependent variable, and GNP per capita (variable 5) as the independent variable. The student's input is underlined.

```
 WHICH COMMAND?
REGR

 ENTER INDEX OF DEPENDENT VARIABLE.
17

 ENTER INDICES OF INDEPENDENT VARIABLES.
5

 LEAST SQUARES REGRESSION

      121 OBSERVATIONS

 DEPENDENT VARIABLE IS DEFN 5

 COEFFICIENT OF DETERMINATION        0.6046

 MULTIPLE CORRELATION COEFFICIENT    0.7775

 STANDARD ERROR OF ESTIMATE         23.2810

 ANALYSIS OF VARIANCE FOR THE REGRESSION

 SOURCE      D.F. SUM OF SQRS   MEAN SQUARE   F-STATISTIC   SIGNIFICANCE

 REGRESSION    1    98615.3       98615.3       181.946      0.989042D-25

 RESIDUALS   119    64498.5       542.004
 TOTAL       120    163114.

 VARIABLE          COEFFICIENT   STD. ERROR    T-STATISTIC   SIGNIFICANCE

 CONSTANT          -0.965985      2.72341      -0.354697      0.723444
 GNP/CP            0.381493D-01  0.282824D-02   13.4887       0.989042D-25

 DO YOU WANT TO SAVE RESIDUALS? TYPE "YES" OR "NO"
NO
```

The student types his specifications in the first three underlined areas. The correlation coefficient between the dependent and independent variables, 0.7775, also is underlined in the example. Note that the computer calls this the "multiple" correlation coefficient: it is not truly "multiple" unless more than one independent variable is entered by the student. A multiple correlation and regression will be computed if the student enters multiple independent variables separated by comma's in his third input line.

The regression equation resulting from the calculation is:

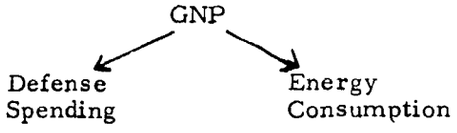
Defense Expenditures per capita = -. 966 + . 038 GNP per capita

Note that the "D-01" instructs the student to move the decimal one place to the left.

- PCOR

If a high correlation between two variables is obtained but it is suspected that the correlation is "spurious," it is possible to check this through partial correlation. Spurious correlation refers to a high correlation between two variables which is obtained not because the two variables are causally related to one another, but because they both are causally related to a third variable.

In the example below, Energy Consumption per capita (variable 13) had been correlated with Defense Expenditures per capita (variable 17) and a fairly high correlation coefficient achieved. It was suspected, however, that both might be caused by the general wealth of a society as measured by GNP per capita (variable 5) such that the causal structure looks like this:



To test this suspicion, PCOR was used to correlate Defense Expenditures per capita and Energy Consumption per capita, taking out the degree of relatedness between the two that could be accounted for by GNP per capita. If the coefficient drops toward zero when GNP effects are taken out, then some support for the suspicion is obtained.

```
 WHICH COMMAND?
CORR

 ENTER INDICES OF VARIABLES FOR WHICH YOU WANT CORRELATIONS,
 OR ENTER "ALL".
13,17

 CORRELATIONS

   118 OBSERVATIONS

 VARIABLE

 ENERGY          1.0000

 DEFN $          0.7376    1.0000

                 ENERGY    DEFN $



 WHICH COMMAND?
PCOR

 ENTER INDICES OF CONDITIONED VARIABLES
13,17

 ENTER INDICES OF CONDITIONING VARIABLES
5

 MATRIX OF PARTIAL CORRELATION COEFFICIENTS
 CONDITIONING VARIABLES: GNP/CP,
 ENERGY          1.0000
 DEFN $          0.0792    1.0000

                 ENERGY    DEFN $
```

The correlation between Defense Expenditures per capita and Energy Consumption per capita drops from .7376 to .0792 when the effects of GNP per capita are taken into account. The results of this test indicate that it might be unwise to infer a causal relationship between Defense Spending and Energy Consumption, since one explanation for the strong relationship between them is that they both are a function of a common variable, GNP.

Table 2

STATISTICAL AND DATA-DISPLAY ROUTINES
OF THE TIMESERIES PACKAGE*

Routine	Description
HIST	Used to produce a histogram which displays the manner in which "observations" in the data file (observations are time-points in TIMESERIES files) are distributed on the selected variable
PLOT	Used to produce a plot of one or more variables over time
CORR	Used to compute a product-moment correlation coefficient between two variables
REGR	Used to produce a least-squares equation with one or more variables predicting the values of another variable; multiple correlation coefficients also are produced
DESC	Used to produce descriptive statistical measures including mean, variance, and standard deviation for any variable in the data file
SCAT	Used to produce a scatter plot of one variable against another
CROS	Used to compute correlation coefficients for two variables when one variable is lagged in time behind another

*Used with the WEISDAT/T, MIDEAST/T and WEISAL/T Data Files.

Examples of Analysis Through TIMESERIES

In the examples below, a series of analyses are performed on the WEISAL/T data file.

- HIST

  In the example of HIST below, a histogram of variable number 2 was requested. Variable 2, whose six-letter abbreviation is SUCNCZ, represents Soviet conflict acts directed toward Czechoslovakia. Note that the "AVERAGE NUMBER/INTERVAL" refers to the average number of cases (specifically, months) on each horizontal line in the histogram.

```
 WHICH COMMAND?
HIST
 ENTER INDICES OF TIME SERIES
2
 ENTER TIME POINTS
ALL
 AVERAGE NUMBER/INTERVAL?
5

 HISTOGRAM OF SERIES       TIME=ALL

   SUCNCZ
  0.        +XXXXXXXXXXXXXXXXXXX21
  4.0000    +XXXXX6
  8.0000    +1
  12.000    +1
  16.000    +
  20.000    +X2
             +---+---+---+---+---+---+---+---+---+
         1.0000          20.000          40.000     FREQUENCIES
                 10.000          30.000             50.000
```

The histogram is read as follows: 21 months with zero or one conflict act from the Soviet Union to Czechoslovakia; six months with two, three, four or five acts from the Soviet Union to Czechoslovakia; one month with six, seven, eight or nine conflict acts; etc. The values in the first column (0, 4, 8, 12, 16, 20) are approximately the midpoints of the intervals in the histogram.

- CORR

CORR is requested just as it is in the CONSTAT version, the only difference being that the user is requested to enter time points (either "ALL" or a continguous subset of time point indices). In the example, variables 2 (SUCNCZ) and 6 (CZCNSU) are correlated.

```
 WHICH COMMAND?
CORR
 ENTER INDICES OF TIME SERIES
2,6
 ENTER TIME POINTS
ALL

 CORRELATION MATRIX        TIME=ALL

    29 DEGREES OF FREEDOM

 VARIABLE LEAD

 SUCNCZ          1.0000

 CZCNSU          0.8269    1.0000

                SUCNCZ    CZCNSU
```

The correlation between the two variables is .8269. Note that the output specifies "29 DEGREES OF FREEDOM." Degrees of freedom is a statistical concept used in the analysis of random samples; it is not applicable to the timeseries data sets used in this course.

- PLOT

  The first example of PLOT below is a plot of variable 2 (SUCNCZ) over all 31 time points in the WEISAL/T file.

```
 WHICH COMMAND?
PLOT
 ENTER INDICES OF TIME SERIES
2
 ENTER TIME POINTS
ALL

 PLOT OF SERIES              TIME=ALL

 * SUCNCZ
          +---+----+---+----+---+----+---+----+---+----+
        1 +*
        2 +*
        3 +*
        4 +*
        5 +*
        6 +*
        7 +*
        8 +*
        9 +*
       10 +*
       11 +*
       12 +     *
       13 +               *
       14 +         *                                   *
       15 +                                                 *
       16 +                                                    *
       17 +                              *
       18 +      *
       19 +           *
       20 +   *
       21 +   *
       22 +   *
       23 +     *
       24 +         *
       25 +*
       26 +*
       27 +*
       28 +   *
       29 +*
       30 +*
       31 +*
          +---+----+---+----+---+----+---+----+---+----+
           0.          7.7551              15.918      SUCNCZ
                3.6735              11.837             20.000
```

Time-points 1-31 in file WEISAL/T represent monthly periods from May 1967 to November 1969. Note that instead of specifying "ALL" time, a contiguous subset of time such as 5-18, etc. could have been specified.

The following is an example of plotting two variables over time on the same plot. This procedure may be used for the purpose of "eyeballing" the relationship between the two variables over time. When the terminal asks "ON SAME SCALE (YES OR NO)," a response of "YES" will produce a plot which will be somewhat easier to interpret than would a response of "NO." The two variables plotted are variables 2 (SUCNCZ) and 43 (USCPCZ).

The student's requests for this plot are shown below:

```
 WHICH COMMAND?
PLOT
 ENTER INDICES OF TIME SERIES
2,43
 ENTER TIME POINTS
ALL
 ON THE SAME SCALE(YES OR NO)
YES
```

The output produced by these instructions is shown on the next page.

```
PLOT OF SERIES              TIME=ALL

1 SUCNCZ

2 USCPCZ
          +---+----+----+----+----+----+----+----+----
        1 +X
        2 +X
        3 +X
        4 +1 2
        5 +X
        6 +X
        7 +X
        8 +X
        9 +X
       10 +X
       11 +X
       12 +2   1
       13 +    2         1
       14 +  2    1
       15 +2
       16 +  2
       17 +2                           1
       18 +2   1
       19 +2        1
       20 +2 1
       21 +  X
       22 +2 1
       23 +2   1
       24 +2      1
       25 +1 2
       26 +X
       27 +X
       28 +2 1
       29 +X
       30 +X
       31 +X
          +---+----+----+----+----+----+----+----+----
        0.               7.7551               15.91
                3.6735              11.837
```

In this plot, the character "1" represents the values of the first variable requested (i.e. variable SUCNCZ) and the character "2" represents the second(USCPCZ). The character "X" represents points at which both variables have the same value.

- REGR

In this example, variable 40 (USCNWP) is the dependent variable and variable 4 (WMCNCZ) is the independent variable.

```
 WHICH COMMAND?
REGR
 ENTER INDICES OF TIME SERIES
40,4
 ENTER TIME POINTS
ALL

 REGRESSION(LEAST SQUARE) TIME=ALL

       31 OBSERVATIONS

 DEPENDENT VARIABLE IS USCNWP

 COEFFICIENT OF DETERMINATION        0.246546

 MULTIPLE CORRELATION COEFFICIENT  0.496534

 STANDARD ERROR OF ESTIMATE      3.08151

 ANALYSIS OF VARIANCE FOR THE REGRESSION

 SOURCE      D.F.  SUM OF SQRS    MEAN SQUARE    F-STATISTIC    SIGNIFICANCE

 REGRESSION    1    90.1086        90.1086        9.48941       0.442405D-0[illegible]

 RESIDUALS    29    275.375        9.49570
 TOTAL        30    365.484

 VARIABLE LEAD    COEFFICIENT    STD. ERROR     T-STATISTIC    SIGNIFICANCE

 CONSTANT          3.05935       0.612967        4.99105       0.2[illegible]

 WMCNCZ            0.599049      0.194466        3.08049       0.442[illegible]
```

The correlation coefficient is 0.497. The linear predictive equation is:

USCNWP = 3.059 + .599 WMCNCZ

Note that the correlation coefficient would be truly "multiple" if more than one independent variable had been specified.

- **DESC**

  Two examples of DESC are given below. In the first example (a) descriptive measures on variable 40 (USCNWP) were requested for time-points 1-15; the second example (b) displays descriptive measures on the same variable but for time-points 17-31.

(a.)

```
 WHICH COMMAND?
DESC
 ENTER INDICES OF TIME SERIES
40
 ENTER TIME POINTS
1-15

 DESCRIPTIVE MEASURES      TIME=1-15

 VARIABLE LEAD  N   MEAN      VARIANCE  STD DEV    MINIMUM    MAXIMUM
 USCNWP         15  2.9333    3.3524    1.8310     0.         6.0000
```

(b.)

```
 WHICH COMMAND?
DESC
 ENTER INDICES OF TIME SERIES
40
 ENTER TIME POINTS
17-31

 DESCRIPTIVE MEASURES      TIME=17-31

 VARIABLE LEAD  N   MEAN      VARIANCE  STD DEV    MINIMUM    MAXIMUM
 USCNWP         15  4.2000    15.743    3.9677     0.         13.000
```

- **SCAT**

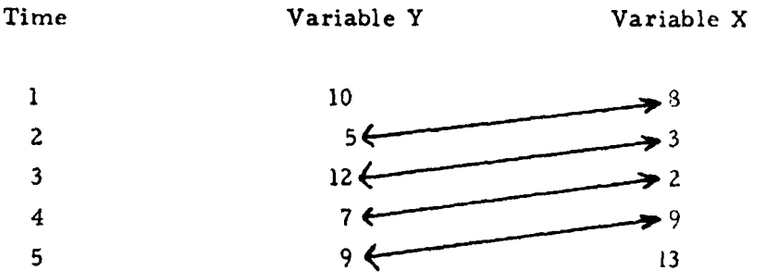
  In the example of a scatter-plot below, variables 4 (WMCNCZ) and 40 (USCNWP) are plotted against each other.

```
 WHICH COMMAND?
SCAT
 ENTER INDICES OF TIME SERIES
4,40
 ENTER TIME POINTS
ALL

 SCATTER PLOT                TIME=ALL

   WMCNCZ
 10.000   +                                                        *

          +

                  *                  *                  *
  7.9310  +

          +

  5.8621  +

          +

  3.7931  +

              *
          +

                                                                   *
  1.7241  +

                        *    *        *
          +

  0.      +3  5    2    3    3  5                    *
            +----+----+----+----+----+----+----+----+----+----+
          0.                      5.0408                  10.247      USCNWP
                    2.3878                  7.6939                  13.000
```

Numbers appearing in the scatter-plot (e.g., the 3, 5, 2, 3, 3, 5 in the above example) represent multiple cases (months) having similar values on the two variables. For example, the number 3 in the lower left corner indicates three months in which both variables had zero values. If there were ten months in which both variables were zero, you would see an "A"; if eleven months a "B," and so on.

- CROS

A lag in CROS is defined as follows: variable X is lagged from variable Y when variable Y at time T is correlated with variable X at time T - 1, 2, 3, etc. An example of a one-period lag is given below.



In this case, variable X is lagged by one period because Y at time T is associated with X at time T-1. Variable X would lead variable Y if Y at time T were associated with X at time T+1.

The output of CROS will identify lags as "-" and leads as "+" in the second column of the output. For example, a "3-" indicates that the corresponding correlation in the first column of the output is for a lag of three periods. All lags and leads are done around the first variable entered into the CROS routine (the first variable is called the "base variable"). In the example below, variable 2 (SUCNCZ) was the base variable, and variable 42 (USCNSU) was lagged and lead by five time periods.

```
 WHICH COMMAND?
CROS
 ENTER INDICES OF TIME SERIES
2,42
 ENTER TIME POINTS
ALL
 ENTER MAXIMUM NUMBER OF LAGS
5

 CROSS-CORRELATIONS        TIME=ALL

 * SUCNCZ        CROSSED WITH USCNSU       (LAG/LEAD MODIFIED)
            +----+----+----+----+----+----+----+----+----+----+
-.1165   5-      *
-.2372   4-*
-.1651   3-    *
-.0474   2-          *
+.1968   1-                        *
+.4744   0+                                        *
+.6393   1+                                                  *
+.5383   2+                                            *
+.2684   3+                            *
-.0074   4+            *
+.0544   5+                *
            +----+----+----+----+----+----+----+----+----+----+
        -.23724             .10263              .46037    COEFFICIENTS

                 -.76249 -1           .28150              .639
```

Note that variable 42 (USCNCZ) is most highly related to variable 2 (SUCNCZ) when the former leads the latter by one time period (+1). The correlation when variable 42 leads variable 2 by one time period is .6393.

DESCRIPTION OF THE DATA FILES

Four data files will be analyzed during the course. This section contains descriptions of the contents of each file.

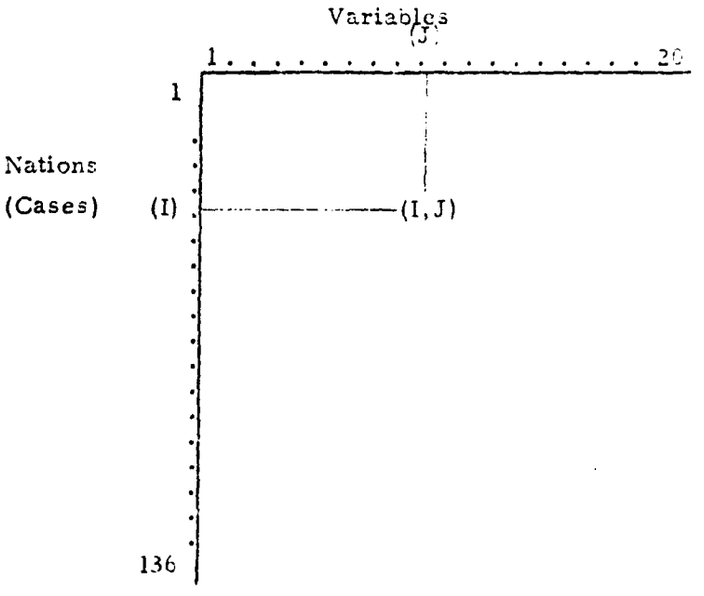
Each data file is given a general description, followed by a list of variables and their index numbers (which are used in operations at the computer terminal). A detailed description of the contents of each variable follows the variable lists. A listing of the data in each file is also included.

The CAIR Data File

General Description. CAIR (Computer Aided International Relations) is an international relations data-set consisting of 20 variables for 136 nations. The majority of the variables measure various "attributes" of nations that characterize their economy, political organization, stability, and social development.

The values were taken principally from the World Handbook of Political and Social Indicators (2nd Edition) compiled under the direction of Charles Taylor and Michael Hudson. The CAIR package was constructed by Charles Taylor and Raymond Tanter at the University of Michigan.

File Structure. The organization of the CAIR data-set is as follows:



Thus, the position (I, J) represents the value of the Jth variable for nation I. A summary of the variables and their indices is given in Table 3, with a more detailed description in the next section.

Table 3

VARIABLES AND INDEX NUMBERS FOR
THE CAIR DATA FILE*

Index	Variable
1	Country-Code
2	Region
3	Population (in thousands)
4	Ethno-Linguistic Fractionalization
5	GNP per capita
6	Party Fractionalization
7	Press Freedom Index
8	Riots
9	Deaths from Political Violence
10	Armed Attacks
11	Anti-Government Demonstrations
12	Literacy
13	Energy Consumption per capita
14	Education Expenditures per capita
15	Numbers of International Organization Memberships
16	Number of Diplomats Abroad
17	Defense Expenditures per capita
18	Government Action Against Political Groups
19	Guerrilla War
20	Civil Wars

---

* Not all of these data were available for all nations. Nations for which data are missing are eliminated from analyses requiring that data.

Description of the CAIR Variables.* This data-set consists of 20 variables for 136 nations. They may be divided into four general categories:

- "demographic" – such as population and literacy rate
- "economic" – such as Gross National Product per capita or energy consumption per capita
- "political-structural" – such as number of diplomatic missions stationed abroad and membership in international organizations, and
- "political-event" – such as the number of riots, deaths by domestic violence, etc.

The following references were data sources:

a) Russett, Bruce M., J. David Singer, and Melvin Small, "National Political Units in the Twentieth Century: A Standardized List," The American Political Science Review, LXII (Sept., 1968), pp. 932-951.

b) Taylor, Charles and Michael Hudson (editors), World Handbook and Social Indicators, 2nd ed., 1971.

c) Feierabend, Ivo K., Rosalind L. Feierabend, and Betty A. Nesvold, Political Events Project: 1948-1965. Inter-University Consortium for Political Research, 1971.

Index	Variable
1.	R/S/S Country Code: The country codes (Table 4) were assigned by Russett, Singer, and Small. Data Source: Ref. (a).

*These descriptions are taken from Charles Taylor and Raymond Tanter, The Computer-Aided International Relations Teaching Package, The International Data Archive at the University of Michigan, May 1971.

Table 4.

CAIR COUNTRY AND REGION CODES

R/S/S Code	Country	Region Index	R/S/S Code	Country	Region Index	R/S/S Code	Country	Region Index	R/S/S Code	Country	Region Index
053	Barbados	1	395	Iceland	3	820	Malaysia	6	481	Gabon	8
020	Canada	1	205	Ireland	3	712	Mongolia	6	452	Ghana	8
040	Cuba	1	325	Italy	3	731	North Korea	6	438	Guinea	8
042	Dominica	1	212	Luxembourg	3	816	N. Vietnam	6	437	Ivory Coast	8
041	Haiti	1	338	Malta	3	840	Philippine	6	501	Kenya	8
051	Jamaica	1	210	Netherlan	3	830	Singapor	6	570	Lesotho	8
070	Mexico	1	385	Norway	3	732	South Korea	6	450	Liberia	8
006	Puerto Rico	1	235	Portugal	3	817	S. Vietnam	6	620	Libya	8
052	Trinidad	1	230	Spain	3	713	Taiwan	6	580	Malagasy	8
002	U.S.A.	1	380	Sweden	3	800	Thailand	6	553	Malawi	8
160	Argentina	2	225	Switzerlan	3	352	Cyprus	7	432	Mali	8
145	Bolivia	2	200	United K.	3	630	Iran	7	435	Mauritan	8
140	Brazil	2	255	West Germ	3	645	Iraq	7	590	Mauritiu	8
155	Chile	2	339	Albania	4	666	Israel	7	600	Morocco	8
100	Colombia	2	355	Bulgaria	4	663	Jordan	7	541	Mozambique	8
094	Costa Rica	2	315	Czechol	4	690	Kuwait	7	436	Niger	8
130	Ecuador	2	310	Hungary	4	660	Lebanon	7	475	Nigeria	8
092	El Salva	2	290	Poland	4	670	Saudi Arabia	7	552	Rhodesia	8
090	Guatamala	2	360	Rumania	4	680	S. Yemen	7	517	Rwanda	8
110	Guyana	2	365	U.S.S.R.	4	652	Syria	7	433	Senegal	8
091	Honduras	2	345	Yugoslav	4	640	Turkey	7	451	Sierra Leone	8
093	Nicaragua	2	700	Afghanis	5	651	U.A.R.	7	520	Somalia	8
095	Panama	2	780	Ceylon	5	678	Yemen	7	560	South Africa	8
150	Paraguay	2	750	India	5	615	Algeria	8	625	Sudan	8
135	Peru	2	781	Maldive	5	540	Angola	8	510	Tanzania	8
165	Uruguay	2	790	Nepal	5	571	Botswana	8	420	The Gamb	8
101	Venezuela	2	770	Pakistan	5	516	Burundi	8	461	Togo	8
305	Austria	3	775	Burma	6	471	Cameroon	8	616	Tunisia	8
211	Belgium	3	811	Cambodia	6	482	Central	8	500	Uganda	8
390	Denmark	3	710	China	6	483	Chad	8	439	Upper Vo.	8
265	East Germany	3	720	Hong Kong	6	484	Congo, B	8	551	Zambia	8
375	Finland	3	850	Indonesia	6	490	Congo, K	8	900	Australia	9
220	France	3	740	Japan	6	434	Dahomey	8	920	New Zealand	9
350	Greece	3	812	Laos	6	530	Ethiopia	8	910	Papua/Ne.	9

2. Region: Normally, the major criterion for including various countries in a given region is geographical. In a few cases, however, demographic (particularly political) criteria were judged sufficiently important to place a country in other than its geographical region. For example, East Germany should be included in Western Europe according to the geographical criterion, but its political and military alignments with Eastern Europe are judged important enough to place it in the Eastern Europe region. Similarly, Greece was included in Western Europe because of its political alignments, despite its Eastern European geographical location.

Region codes with corresponding areas follow:

1. = North America, Caribbean and Mexico
2. = Central and South America
3. = Western Europe
4. = Eastern Europe
5. = Central Asia
6. = Far East
7. = Middle East
8. = Africa (including North Africa)
9. = Oceania

Data Source: Ref. (a).

3. Total Population in Thousands 1965.
Data Source: Ref. (b).

4. Ethno-Linguistic Fractionalization: This index represents the probability that two randomly selected individuals in a nation will differ in ethnic origin or language. The index thus varies from 0 to 1.
Data Source: Ref. (b).

5. GNP/Per Capita 1965: Gross National Product per capita is reported in constant 1965 prices in millions of U.S. dollars divided by the total population of each country. Included is GNP per capita even for those countries which normally report their accounts in terms of net material products or other concepts

Data Source: Ref. (b).

6. Party Fractionalization: Data were gathered for one election between 1963 and 1968 within each country experiencing an election during this period. Indexes of fractionalization are based upon the party cleavages in the lower (or only) branch of the legislature. Fractionalization indicates the likelihood that two randomly selected members of the legislature will belong to different parties. The index thus varies from 0 to 1.
Data Source: Ref. (b)

7. Press Freedom Index 1965: The Press Freedom Index was created by the School of Journalism, University of Missouri. It is designed to measure the independence of a nation's broadcasting and press system and its ability to criticize its own local and national governments. The index is composed of the judgments of panels of indigenous and foreign newsmen on 23 aspects of the press (e.g., extent of legal controls, licensing, government ownership, criticisms, and censorship). The index consists of averages of the judges' scores and has a range from -4.00 for least freedom to +4.00 for most freedom.
Data Source: Ref. (b).

8. Riots 1963-67: Riots are defined as any violent demonstration or clash involving a large number of citizens. "Violent" here denotes the use of physical force characterized by the destruction of property the wounding or killing of people, or the use of riot control equipment such as clubs, gas, fire arms, or water cannons by the authorities and various weapons by the rioters. Riots are distinguised from demonstrations in that they are violent and from armed attacks in that they are spontaneous in nature.

Data Source: Ref. (b).

9. Deaths 1963-67 From Political Violence: Deaths from political violence consist of the number of deaths reported in conjunction with riots, political strikes, and armed attacks. It excludes assassination victims, murders, executions, deaths in enemy prisons, deaths in formal warfare, or deaths in border incidents. Reports of "casualties" or "victims" are not counted; the report must specify deaths.

Data Source: Ref. (b).

10. Armed Attacks 1963-1967: Armed attacks are defined as any act of violence committed by an organized group or by an individual involving the use of weapons of any kind intended as a protest or revolt against a government, one or more of its leaders, or its actions or policies; an attack on a group within the society such as a religous, ethnic, racial, or special interest group. Armed attacks not exceeding a level of violence such that the government can no longer control them by normal punitive measures are not counted as guerrilla or civil war events. When this threshold is exceeded and a state of civil rebellion exists, both the government's actions and the rebel's actions are considered to be armed attacks.

Armed attacks include attacks on government buildings and personnel as well as village bombings and other acts of sabotage, terrorism, and governmental responses in kind against a rebel group. Excluded from this variable are sporadic events which have no discernible political significance, events organized and carried out by foreign groups within the country (except in the case of colonies where the metropole's forces engage native forces), the confrontation of the armed forces of two or more countries in a de facto war zone, and raids and arrests by the authorities.

Data Source: Ref. (b).

11. Anti-Government Demonstrations 1963-1967: Anti-government demonstrations are defined as any non-violent gathering of people for the purpose of protesting against a government, its actions or policies, or one or more of its leaders. This variable includes demonstrations for or against a foreign government, its policies, its leaders or visiting representative(s), where such a demonstration implies opposition to the demonstrators' own government as well. Excluded are election meetings or rallies, boycotts, or demonstrations that become riots. (Cf. riots.)
Data Source: Ref. (b).

12. Literacy 1965: Literacy is defined as the ability both to read and to write. Hence, persons who can read but who cannot write are classified as illiterates. Persons whose literacy is unknown are excluded from the calculation in both numerator and denominator. The data refer to the percentage of total population over 15 years of age who can both read and write.
Data Source: Ref. (b).

13. Energy Consumption Per Capita: These data are expressed in terms of coal equivalents, i.e., the quantity of coal it would have taken to produce the electricity generated by water and nuclear power or the heat value of oil and natural gas expressed in terms of coal.
Data Source: Ref. (b).

14. Education Expenditures ($) Per Capita 1965: This variable was derived by dividing total education expenditures in U.S. dollars by total population for each country. The data include expenditures for (a) pre-school, (b) primary, (c) secondary and (d) university levels. The data include expenditures of all levels of government wherever possible. In some cases, however, data refer only to ministry of education or central government expenditures. Private expenditures assigned to private education are excluded except in the cases of Japan and India.
Data Source: Ref. (b).

15. Total International Organizations Memberships: Data for this variable refer to the number of United Nations affiliated organizations to which a particular nation belongs, plus the non-U.N. international organizations to which a country belongs. Associate memberships, observers, "participating countries" (i.e., participating in activities of an international governmental organization but not as a formal member) are excluded from this variable. The total number of international organizations is 209, 16 of which are U.N. affiliates.
Data Source: Ref. (b).

16. Number of Diplomatic Missions Abroad: This variable consists of the total number of diplomats sent to other nations. Data are for the period 1963-1964.
Data Source: Ref. (b).

17. Defense Expenditures ($) Per Capita 1965: This variable was derived by dividing each country's total military expenditures by its total population. Defense expenditures are defined as current and capital expenditures to meet the needs of the armed forces, and cover all expenditures of national defense agencies other than for largely civilian projects, as well as the distinguishable military component of such mixed activities as atomic energy, space, research and development, and para-military forces. Where possible, military assistance to foreign countries, retirement pensions of career personnel, and military equipment stockpiling are included. Civil defense, civilian space, and industrial stockpiling are excluded.
Data Source: Ref. (b)

18. Government Action Against Specific Groups, 1960-1965: This variable is defined as governmental seizure or detainment of an individual for political reasons. This definition includes imprisonment or jailing. It is limited to politically motivated arrests. It excludes arrests for non-political reasons and arrests of foreign nationals for acts of espionage or subversion. Arrests of nationals, however, are included even though the charge against them is spying for a foreign regime.
Data Source: Ref. (c).

19. Guerrilla War, 1960-1965: Guerrilla warfare is defined as activity by mobile and scattered forces aimed at the ultimate overthrow of the government. Guerrilla warfare is distinguished from revolts (an armed attempt on the part of a group to form a government) or civil wars, by the irregular tactics employed. These usually take the form of attacks on villages and outposts, kidnappings, etc. Data Source: Ref. (c).

20. Civil Wars 1960-1965: Civil War is defined as all out war between two or more organized major segments of the population in a given country. It is distinguished from guerrilla warfare in that each side has its own government and conventionally organized armed forces and involves the entire nation. Armed conflict is usually continuous and involves large numbers of combatants on each side. It is possible for a guerrilla war or revolt to escalate into a civil war as the scope, frequency and intensity of military violence increases. Data Source: Ref. (c).

The WEISDAT/T Data File

General Description. This file contains the "interaction" or "event" data that give information concerning the reported behavior of one nation toward another in the international arena. For this purpose, an event, or interaction, is defined as any action taken by a nation that, in some sense, crosses an international boundary. Examples are: The U.S. threatens the USSR; Israel requests U.S. aid; France signs as agreement with Britain, etc.

The source of these data is the World Event/Interaction Survey (WEIS) at the University of Southern California. All possible interactions are grouped into 63 event categories, and WEIS codes classify each international action reported in the New York Times into one of these categories. The acting and target nations, the date, and the event type are recorded.

The WEISDAT/T file is a small sub-set of that collection. All event types are aggregated into two groups: cooperative and conflictual. Numbers of the actions received and initiated monthly by three nations, the USSR, Israel, and the U.S., are included for the 57-month period from January 1966 through September 1970. In addition, the total number of monthly interactions in the international system, the total number of cooperative acts and the total number of conflictual acts are included. These data, including actions by every nation, can be used to follow general trends in the international political environment.

File Structure. Variables in the file are identified in two ways:

- by an integer index number from 1 through 22, and
- by a 6-character name.

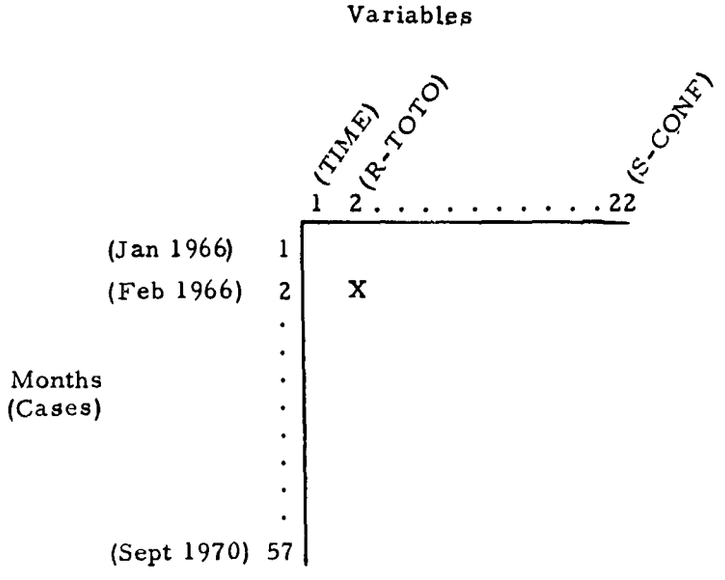
In specifying variables for analysis, the student will use the indices; in the printed output, the variables will be referred to by name. Indices, names, and descriptions of the 22 variables are given in Table 5.

Table 5

VARIABLES AND INDEX NUMBERS FOR THE WEISDAT/T DATA FILE

Index	Name	Description
1	TIME	Identifies file as a time series; not used by students
		Actions by the USSR:
2	R-TOTO	Total
3	R-COPO	Cooperative only
4	R-CONO	Conflictual only
		Actions Directed toward the USSR:
5	R-TOTI	Total
6	R-COPI	Cooperative only
7	R-CONI	Conflictual only
		Actions by Israel
8	I-TOTO	Total
9	I-COPO	Cooperative only
10	I-CONO	Conflictual only
		Actions Directed toward Israel
11	I-TOTI	Total
12	I-COPI	Cooperative only
13	I-CONI	Conflictual only
		Actions by the U. S.
14	A-TOTO	Total
15	A-COPO	Cooperative only
16	A-CONO	Conflictual only
		Actions Directed toward the U. S.
17	A-TOTI	Total
18	A-COPI	Cooperative only
19	A-CONI	Conflictual only
		Actions by All Nations
20	S-TOTL	Total
21	S-COOP	Cooperative only
22	S-CONF	Conflictual only

In using the file it may be helpful to visualize it as organized in the form of an array as shown below:

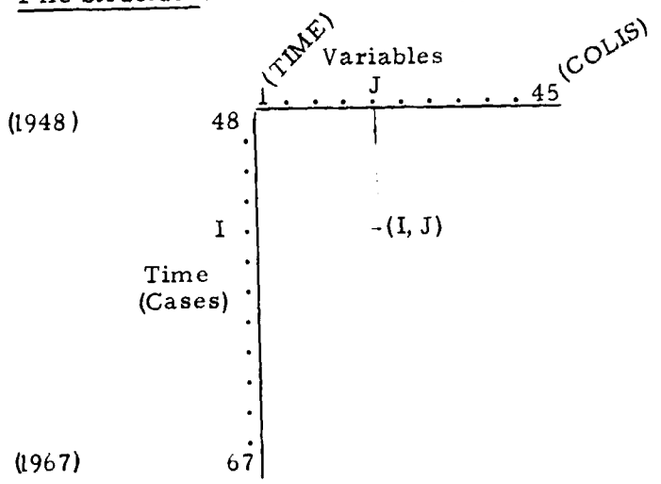


In this diagram, X represents the total number of actions initiated by the USSR during February, 1966. The student specifies the time-points to be included in his analysis either as "ALL" or a contiguous subset of time points, such as "1-30."

The MIDEAST/T Data File

General Description. The MIDEAST/T data-file* contains 45 variables that might have had an impact on developments in the Middle-East political situation. These variables are defined in Table 5.

File Structure. This data-file may be represented as follows:



Thus, the position (I, J) represents the value of the Jth variable in the Ith year.

Values are included for all of the variables for which data were available for the years 1948-1967. The student specifies the time-points to be included in his analysis either as "ALL" or as a contiguous sub-set of time points as "57-67".

*These data were collected by Jeffrey Milstein, Yale University, as part of an effort to develop a model of Middle-East political dynamics.

Table 6.

VARIABLES AND THE INDICES IN THE MIDEAST/T DATA FILE

Index	Name	Description
1	TIME	By Year 1948-1967 (Identifies file as a time series; not used by students)
2	ECAEG	Total U.S. Economic aid to Egypt (million $)
3	ECAIS	Total U.S. Economic aid to Israel (million $)
4	ECAJO	Total U.S. Economic aid to Jordan (million $)
5	MLAAR	Total U.S. Military aid to Arabs (million $)
6	MLAIS	Total U.S. Military aid to Israel (million $)
7	MLAJO	Total U.S. Military aid to Jordan (million $)
8	DEXEG	Total defense expenditures Egypt (million Egyptian lbs.)
9	DEXIS	Total defense expenditures Israel (million Israeli lbs.)
10	DEXJO	Total defense expenditures Jordan (million Jordanian Dinars)
11	SEAEG	Total Soviet Economic aid to Egypt (million $)
12	SMAEG	Total Soviet military aid to Egypt (million $)
13	OILEA	U.S. Earnings from Direct Investment in Middle East Oil (million $)
14	GOFIS	Encounters* between Israeli government forces and Arab government forces
15	GOFEG	Encounters* between Egyptian government forces and Israeli government forces
16	GOFJO	Encounters* between Jordanian government forces and Israeli government forces
17	GUEIS	Encounters* between Israeli commandos and Arab government forces
18	GUEEG	Encounters* between Egyptian guerrillas and Israeli government forces
19	GUEJO	Encounters* between Jordanian guerrillas and Israeli government forces

*Number of weeks per year in which one or more military encounters occurred.

Index	Name	Description
20	CIVIS	Attacks* on Arab civilians by Israeli forces
21	CIVEG	Attacks* on Israeli civilians by Egyptian forces
22	CIVJO	Attacks* on Israeli civilians by Jordanian forces
23	EGCEG	Total energy consumption Egypt (million metric tons coal equivalent)
24	EGCIS	Total energy consumption Israel (million metric tons coal equivalent)
25	EGCJO	Total energy consumption Jordan (million metric tons coal equivalent)
26	GEXEG	Total government expenditures Egypt (million Egyptian lbs.)
27	GEXIS	Total government expenditures Israel (million Israeli lbs.)
28	GEXJO	Total government expenditures Jordan (million Jordanian Dinars)
29	GNPEG	Total GNP Egypt (million Egyptian lbs.)
30	GNPIS	Total GNP Israel (million Israeli lbs.)
31	GNPJO	Total GNP Jordan (million Jordanian Dinars)
32	USEEG	U. S. exports to Egypt (million Egyptian lbs.)
33	USEIS	U. S. exports to Israel (million Israeli lbs.)
34	USEJO	U. S. exports to Jordan (million Jordanian Dinars)
35	SUEEG	USSR exports to Egypt (million Egyptian lbs.)
36	SUEIS	USSR exports to Israel (million Israeli lbs.)
37	EGEUS	Egypt exports to US (million Egyptian lbs.)
38	EGESU	Egypt exports to USSR (million Egyptian lbs.)
39	ISEUS	Israel exports to U. S. (million Israeli lbs.)
40	ISESU	Israel exports to USSR (million Israeli lbs.)

*Number of weeks per year in which one or more military attacks occurred.

Index	Name	Description
41	DEVEG	Total development spending* from Egyptian Budget (million Egyptian lbs.)
42	DEVIS	Total development spending* from Israeli Budget (million Israeli lbs.)
43	DEVJO	Total development spending* Jordan (million Jordanian Dinars)
44	COLEG	Cost of living index Egypt
45	COLIS	Cost of living index Israel

*Development spending refers to spending for public goods (military spending excluded) such as dams, roads, power plants, etc.

The WEISAL/T Data File.

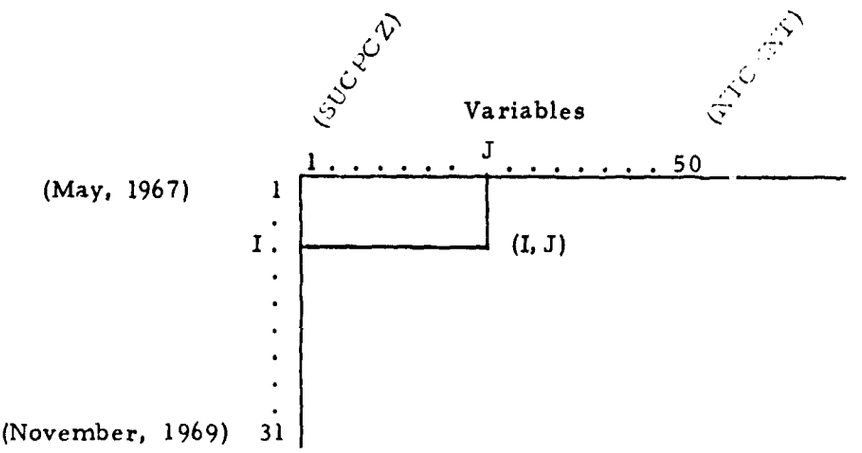
General Description. The WEISAL/T (WEIS Alliance/Time Series) file may be used in conjunction with work sessions on alliance cohesion. Most of the 50 variables in the data set represent the international interactions of Warsaw Pact nations before, during, and after the Czechoslovakian crisis in August 1968. In addition, the file contains information on the Warsaw Pact-NATO interactions and activity within NATO for the same time period.

The data in the file have been extracted from the World Event/ Interaction Survey data collection at the University of Southern California. They are thus the same event/interaction* type of data as in the WEISDAT/T file.

The data file contains values for each month from May 1967 to November 1969. Thirty-one monthly periods thus are included in the data: fifteen months before the Czech crisis; the month of the crisis itself (August, 1968); and fifteen months following the crisis.

*An event/interaction is defined as an act initiated by a high-level governmental source in one nation and directed toward some other international actor.

File Structure. The data-file is structured as follows:



Thus, the position (I, J) represents the value of the Jth variable for the Ith month.

Each row in the matrix contains one month of data on each variable. The first is May, 1967, and the last November, 1969. The index numbers for time are 1-3/31 (e.g., 1 = May 1967; 2 = June 1967, etc.). The variables are defined in Table 7.

Table 7.

VARIABLES AND INDICES FOR THE WEISAL/T DATA FILE

Variable	Index #	
SUCPCZ	1	Actions of Warsaw Pact nations toward Czechoslovakia
SUCNCZ	2	
WMCPCZ	3	
WMCNCZ	4	
CZCPSU	5	Actions of Warsaw Pact nations toward Soviet Union
CZCNSU	6	
EGCPSU	7	
EGCNSU	8	
POCPSU	9	
POCNSU	10	
HUCPSU	11	
HUCNSU	12	
ALCPSU	13	
ALCNSU	14	
BUCPSU	15	
BUCNSU	16	
RUCPSU	17	
RUCNSU	18	
WMCPSU	19	
WMCNSU	20	

Variable	Index #	
SUCPWP	21	Actions of Warsaw Pact nations toward the Pact nations as a whole (Pact minus Czechoslovakia)
SUCNWP	22	
EGCPWP	23	
EGCNWP	24	
POCPWP	25	
POCNWP	26	
HUCPWP	27	
HUCNWP	28	
ALCPWP	29	
ALCNWP	30	
BUCPWP	31	
BUCNWP	32	
RUCPWP	33	
RUCNWP	34	
CZCPWP	35	
CZCNWP	36	
WPCPWP	37	
WPCNWP	38	
USCPWP	39	U.S. actions toward Warsaw Pact, USSR, and Czechoslovakia
USCNWP	40	
USCPSU	41	
USCNSU	42	
USCPCZ	43	
USCNCZ	44	
NTCPWR	45	Actions between NATO and Warsaw Pact
NTCNWR	46	
WRCPNT	47	
WRCNNT	48	
NTCPNT	49	Within-NATO Activity
NTCNNT	50	

Description of the WEISAL/T Variables. There are 50 variables in data set WEISAL/T; each variable contains an array of monthly total frequencies of specific types of international acts (either conflict or cooperative) that were initiated by one nation or group of nations and directed toward another nation or group of nations. Each variable name is comprised of six alphabetic characters. The first two characters identify the acting nation or nation group:

CZ = CZECHOSLOVAKIA
SU = SOVIET UNION
EG = EAST GERMANY
PO = POLAND
HU = HUNGARY
AL = ALBANIA
BU = BULGARIA
RU = RUMANIA
US = UNITED STATES
WP = WARSAW PACT EXCLUDING CZECHOSLOVAKIA
WM = WARSAW PACT EXCLUDING CZECHOSLOVAKIA AND SOVIET UNION
WR = ALL WARSAW PACT NATIONS
NT = ALL NATO NATIONS

The last four actor codes in the above list represent aggregations of nations as actors. These aggregations will allow exploration of such questions as, "What were the activities of the Warsaw Pact nations as a whole toward the USSR," or, "What were the actions of the twelve NATO countries toward the eight Warsaw Pact Nations?"

The second two characters identify the types of actions sent from the acting nation or nation-group to the target (receiving) nation or nation-group:

CP = COOPERATIVE ACTS
CN = CONFLICT ACTS

The last two characters identify the target nation or nation-group. Nation and nation-group target codes are exactly as the actor codes given above.

Example Variables:

The variable identifying Soviet Conflict acts to Czechoslovakia is:

SUCNCZ

The variable identifying Bulgarian Cooperative acts to the rest of the Warsaw Pact Nations (excluding Czechoslovakia) is:

BUCPWP

The variable identifying all Warsaw Pact Conflict acts to NATO is:

WRCNNT

WORKSHOP EXERCISES

During the part of the course devoted to the study of data-file analysis, there will be four Workshop Periods. Each workshop has a general theme or problem to be investigated. This section contains suggestions about specific analyses to perform and specific questions to be answered. These were chosen to aid you in approaching the general problem. You may, of course, wish to carry out analyses of your own choosing. These instructions were meant only to point in general directions and must be supplemented by your own knowledge and insight.

Session 4

DISPLAY AND EXAMINATION OF DATA

General Theme:

The use of computer routines to examine a collection of data.

General Questions:

- What descriptors are most useful in characterizing a time-series (i. e., a set of values associated with points in time)?

- How can you quickly get an intuitive feeling for the relationships among the variables in the data collection?

Suggested Steps:

1. After signing-on to the computer system*, request the WEISDAT/T file.**

2. Choose several variables and obtain general descriptions of them.

   Two routines are available in TIMESERIES that may be used for the quick examination of a data-set: DESC, which produces the mean, variance, standard devation, and maximum and minimum values, and HIST, which plots a histogram of any specified variable.

3. Examine variables 13 (conflictual behavior toward Israel) and 16 (conflictual behavior by the U. S.). What do you observe about their means and variances? Can you explain the reason for the difference in their variances by examining their histograms?

4. Examine trends over time for several of the variables.

   Trends over time can be seen by plotting the values as a function of time. Use the routine PLOT for this.

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*See "Instructions for Terminal Operations," pp. I-2 — I-5.

**This is a time-series file and, by requesting it, you have also called up the TIMESERIES statistical package.

5. Plot variable 13 as a function of time. What conclusions can you draw about the trend in conflictual acts toward Israel?

6. Plot variable 16. What is the trend in U. S. conflictual acts? (Notice that the trend is much clearer for Israel than for the U. S.)

7. Relationships between two variables can be quickly determined from scatter-plots (i.e., plots of the values of one variable against values of another). The routine SCAT will produce scatter plots.

   Plot variable 10 against variable 13.

   What conclusions can you draw about conflictual acts by and toward Israel?

8. Using SCAT, plot the conflictual acts toward the Soviet Union against those by the Soviet Union. Compare this scatter-plot with the Israeli scatter plot.

Session 6

QUANTITATIVE ASPECTS OF NATIONAL POWER

General Theme:

The "operationalization" of concepts.

General Question:

How can the concept of national power be operationalized? Do different definitions of power yield different rankings of the nations in terms of their power?

Suggested Steps:

1. Request the CAIR data set.

2. Request a general description of the variables in the CAIR collection.

   (DESC will produce this general description for all of the variables in the set; you cannot examine one at a time.)

   How do you think your estimate about the extent to which nations vary in power would depend on your particular choice of a measure of "power"?

3. Another way to examine the variation among nations is to look at a histogram for each measure of power you are examining. (Use the routine HIST.)

   What can you say about variations among nations on the basis of examination of several histograms?

4. One way to discover if any two measures of "power" would lead to different rankings is to find out the extent to which nations' values of one variable are related to their values of another variable.

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*CAIR is a collection of the values of a set of 20 attributes for 136 nations. You will have the statistical package CONSTAT available.

Choose two likely measures of power and obtain a scatter-plot for them. Would they produce the same ranking of nations on the basis of national power?

5. Correlate these two measures of power. Does the correlation coefficient indicate that the measures are highly related?

6. Perhaps given measures of "power" will be related within one set of nations and not within another. Use the GROUP routine to group the nations into regions and test your ideas about measuring power within regions instead of over all the nations. Use scatter-plots and correlation to decide whether measures of power are related differently in different regions.

Session 9

QUANTITATIVE INVESTIGATION OF U.S. POLICY OBJECTIVES AND ACTIONS IN THE MIDDLE EAST

General Theme:

Formulating U. S. foreign policy toward nations in conflict.

General Questions:

- What actions by the U. S. would lead toward fulfilling U. S. policy objectives in the Middle East?

- To what extent is the attainment of U. S. policy objectives determined by factors outside U. S. control?

The Specific Workshop Problem*:

Given: The following U. S. foreign policy objectives:

1. To reduce the arms race between Israel and the Arab countries

2. To increase Israel's security

3. To reduce the violence between Israel and the Arab countries

4. To increase the level of economic development of the Middle East nations

5. To increase friendly ties between the U. S. and the Middle East nations

6. To decrease Soviet influence in the Middle East

*The MIDEAST/T file is used in this workshop. It is a time-series file.

Find: Actions by the U. S. that are most likely to achieve these objectives.

Actions outside U. S. control that apparently affect the attainment of these objectives.

Suggested Steps in This Study*:

For each of the policy objectives:

- State the theoretical relationship between your proposed U. S. action and the desired policy objective. This statement is your hypothesis.

- Choose variables to measure each concept in your hypothesis. This step is the operationalization of the concepts.

- Formulate hypotheses about relationships involving factors other than U. S. actions that will affect the achievement of the policy objectives.

- Operationalize these concepts.

- Test each hypothesis, using the quantitative data available in the Middle East data-file. Note the strength of statistical association and form of effect (regression coefficient) for each relationship tested.

- Decide whether or not your hypothesis is supported by the empirical evidence.

- State the implications of your investigations for U. S. policy in the Middle East.

*It is assumed that, by now, you are sufficiently familiar with the statistical packages and the analytical techniques, so that the choice of how the questions are to be answered can be left to you.

- Discuss your investigation, including: any reservations you have about this type of policy analysis; comparison of the strengths and weaknesses of this analysis with other methods.

Session 12

QUANTITATIVE INVESTIGATION OF THE EFFECT OF A CRISIS ON ALLIANCES

General Theme:

The reaction of alliances to internal and external crisis.

General Question:

What effect did the Czech crisis have on the behavior of NATO and the Warsaw Pact?

Suggested Study Questions:

Identification of the Crisis.

1. Can you determine from the event-interaction data that a "crisis" occurred during the 31-month period covered by the data?

2. When did the crisis occur and how long did it last?

3. What data, other than the event-data, would have helped in the identification and location of the crisis?

4. The data-file that you have used covered periods both before and after the crisis. Using just the data for the period before the peak of the crisis, could you have predicted that a crisis might occur?

5. What data other than the event data would have been useful in this prediction?

Effect of the Crisis on Alliance Cohesion.

6. Can you operationalize the concept of alliance cohesion from the event data?

7. How did the cohesion of the two alliances change after the crisis?

Effect of an Internal Crisis on the Behavior of Alliance Members.

From the viewpoint of the Warsaw Pact nations, this is an internal crisis; that is, they are not facing an external threat, but an internal disagreement.

8. Develop hypotheses about the behavior during such a crisis of the alliance as a whole, the block leader, and the other members of the alliance.

Effect of an External Crisis on the Behavior of Alliance Members.

From the viewpoint of the NATO countries, this is an external crisis. It might possibly be termed a "second-order" crisis since none of the NATO nations were threatened directly, but only in the sense that any threat, regardless of its target, threatens the peace and security of the rest of the world.

9. What would you predict about the behavior of the NATO nations, both individually, and acting as a group, during and after such a crisis?

Extension of the Analysis to Prediction.

10. These hypotheses about behavior can be checked against the data-file. Is it possible to make predicitions about what might have happened if the events had been different? For example, what type of behavior would you expect from NATO and the Warsaw Pact if the crisis had involved a NATO nation?

Aid for the Policy-Maker

11. If you had been involved in formulating U.S. foreign policy during the period immediately following the Czech crisis, would you have found this analysis helpful?

12. What additional questions would you have asked?

13. What additional data would you have liked to see?

APPENDIX A. LISTING OF THE DATA-FILES

The tables in this appendix contain the numerical values stored in the data-files described in this manual. They are listed here for two reasons:

- Visual inspection of the data may be helpful in understanding the results of some of the analyses.
- If the Michigan system is not used, then the files may be recreated on another system from these tables.

Table A-1.

THE CAIR DATA-FILE

Note: Data codes of 0.10000D 07 indicate missing data.

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Peru	135.00	2.0000	11650.	0.59000
Brazil	140.00	2.0000	82222.	0.71000D-01
Bolivia	145.00	2.0000	3697.0	0.67800
Paraguay	150.00	2.0000	2030.0	0.14500
Chile	155.00	2.0000	8567.0	0.14000
Argentina	160.00	2.0000	22352.	0.30700
Uruguay	165.00	2.0000	2715.0	0.19800
United Kingdom	200.00	3.0000	54595.	0.32500
Ireland	205.00	3.0000	2873.0	0.45000D-01
Netherlands	210.00	3.0000	12292.	0.10200
Belgium	211.00	3.0000	9464.0	0.55100
Luxembourg	212.00	3.0000	331.00	0.15500
France	220.00	3.0000	48922.	0.26100
Switzerland	225.00	3.0000	5945.0	0.50400
Spain	230.00	3.0000	31604.	0.43600
Portugal	235.00	3.0000	9199.0	0.60000D-02
W. Germany	255.00	3.0000	59041.	0.26000D-01
E. Germany	265.00	3.0000	17100.	0.17000D-01
Poland	290.00	4.0000	31496.	0.28000D-01
Austria	305.00	3.0000	7255.0	0.12600

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
U. S. A.	2.0000	1.0000	0.194570 06*	0.50500
Puerto Rico	6.0000	1.0000	2633.0	0.21000D-01**
Canada	20.000	1.0000	19604.	0.75500
Cuba	40.000	1.0000	7631.0	0.38000D-01
Haiti	41.000	1.0000	4396.0	0.14000D-01
Dominica	42.000	1.0000	3619.0	0.37000D-01
Jamaica	51.000	1.0000	1788.0	0.46000D-01
Trinidad	52.000	1.0000	975.00	0.55800
Barbados	53.000	1.0000	244.00	0.21800
Mexico	70.000	1.0000	42689.	0.30500
Guatemala	90.000	2.0000	4438.0	0.64400
Honduras	91.000	2.0000	2284.0	0.16200
El Salvador	92.000	2.0000	2928.0	0.16600
Nicaragua	93.000	2.0000	1655.0	0.18000
Costa Rica	94.000	2.0000	1433.0	0.72000D-01
Panama	95.000	2.0000	1300.0	0.28500
Colombia	100.00	2.0000	18068.	0.60000D-01
Venezuela	101.00	2.0000	8722.0	0.10700
Guyana	110.00	2.0000	647.00	0.58400
Ecuador	130.00	2.0000	5084.0	0.53400

*Move decimal point 6 places to the right
**Move decimal point 1 place to the left.

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Hungary	310.00	4.0000	10148.	0.98000D-01
Czechoslovakia	315.00	4.0000	14159.	0.49000
Italy	325.00	3.0000	51576.	0.38000D-01
Malta	338.00	3.0000	319.00	0.83000D-01
Albania	339.00	4.0000	1865.0	0.93000D-01
Yugo	345.00	4.0000	19508.	0.75400
Greece	350.00	3.0000	8551.0	0.99000D-01
Cyprus	352.00	7.0000	594.00	0.34900
Bulgaria	355.00	4.0000	8200.0	0.22000
Rumania	360.00	4.0000	19027.	0.25200
U. S. S. R.	365.00	4.0000	0.23060D 06	0.66600
Finland	375.00	3.0000	4612.0	0.15900
Sweden	380.00	3.0000	7734.0	0.83000D-01
Norway	385.00	3.0000	3723.0	0.39000D-01
Denmark	390.00	3.0000	4758.0	0.49000D-01
Iceland	395.00	3.0000	192.00	0.54000D-01
The Gamb	420.00	8.0000	330.00	0.72800
Mali	432.00	8.0000	4576.0	0.77800
Senegal	433.00	8.0000	3490.0	0.72300
Dahomey	434.00	8.0000	2365.0	0.61800

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Mauritan	435.00	8.0000	1050.0	0.33500
Niger	436.00	8.0000	3328.0	0.73300
Ivory Coast	437.00	8.0000	3835.0	0.85900
Guinea	438.00	8.0000	3500.0	0.75000
Upper Vo.	439.00	8.0000	4858.0	0.67800
Liberia	450.00	8.0000	1070.0	0.83000
Sierra Leona	451.00	8.0000	2290.0	0.76900
Ghana	452.00	8.0000	7740.0	0.70600
Togo	461.00	8.0000	1638.0	0.71100
Cameroon	471.00	8.0000	5229.0	0.89200
Nigeria	475.00	8.0000	57500.	0.86900
Gabon	481.00	8.0000	463.00	0.68800
Central	482.00	8.0000	1352.0	0.68600
Chad	483.00	8.0000	3307.0	0.82600
Congo, B	484.00	8.0000	840.00	0.65700
Congo, K	490.00	8.0000	15627.	0.90100
Uganda	500.00	8.0000	7551.0	0.89900
Kenya	501.00	8.0000	9365.0	0.83300
Tanzania	510.00	8.0000	10515.	0.92000
Burundi	516.00	8.0000	3210.0	0.360000-01
Rwanda	517.00	8.0000	3110.0	0.13700

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Somalia	520.00	8.0000	2500.0	0.77000D-01
Ethiopia	530.00	8.0000	22600.	0.69400
Angola	540.00	8.0000	5154.0	0.78300
Mozambique	541.00	8.0000	6956.0	0.65500
Zambia	551.00	8.0000	3710.0	0.81800
Rhodesia	552.00	8.0000	4260.0	0.54400
Malawi	553.00	8.0000	3940.0	0.62000
So. Africa	560.00	8.0000	17867.	0.87700
Lesotho	570.00	8.0000	838.00	0.22200
Botswana	571.00	8.0000	559.00	0.50600
Malagasy	580.00	8.0000	6420.0	0.62000D-01
Mauritiu	590.00	8.0000	741.00	0.58000
Morocco	600.00	8.0000	13323.	0.53400
Algeria	615.00	8.0000	11871.	0.43500
Tunisia	616.00	8.0000	4414.0	0.15800
Libya	620.00	8.0000	1617.0	0.22800
Sudan	625.00	8.0000	13540.	0.73500
Iran	630.00	7.0000	23428.	0.75600
Turkey	640.00	7.0000	31086.	0.25500
Iraq	645.00	7.0000	8262.0	0.36200
U.A.R.	651.00	7.0000	29600.	0.44000D-01

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Syria	652.00	7.0000	5300.0	0.22300
Lebanon	660.00	7.0000	2565.0	0.13500
Jordan	663.00	7.0000	1976.0	0.47000D-01
Israel	666.00	7.0000	2563.0	0.19900
Saudi Arabia	670.00	7.0000	6750.0	0.59000D-01
Yemen	678.00	7.0000	5000.0	0.37000D-01
S. Yemen	680.00	7.0000	1105.0	0.15000D-01
Kuwait	690.00	7.0000	467.00	0.18500
Afghanistan	700.00	5.0000	15051.	0.65800
China	710.00	6.0000	0.70000D 06	0.11800
Mongolia	712.00	6.0000	1104.0	0.38300
Taiwan	713.00	6.0000	12429.	0.35000
Hong Kong	720.00	6.0000	3804.0	0.18000D-01
North Korea	731.00	6.0000	12100.	0.0
South Korea	732.00	6.0000	28377.	0.0
Japan	740.00	6.0000	97960.	0.15000D-01
India	750.00	5.0000	0.48673D 06	0.88600
Pakistan	770.00	5.0000	0.10288D 06	0.64500
Burma	775.00	6.0000	24732.	0.47500
Ceylon	780.00	5.0000	11232.	0.46700
Maldive	781.00	5.0000	98.000	0.18000

Country	Country Code	Region	Population (in thousands)	Ethno-Linguistic Fractionalization
Nepal	790.00	5.0000	10100.	0.69900
Thailand	800.00	6.0000	30591.	0.66400
Cambodia	811.00	6.0000	6115.0	0.29700
Laos	812.00	6.0000	2000.0	0.60000
N. Vietnam	816.00	6.0000	19000.	0.27400
S. Vietnam	817.00	6.0000	16124.	0.19000
Malaysia	820.00	6.0000	9403.0	0.71600
Singapor	830.00	6.0000	1865.0	0.41900
Phillippines	840.00	6.0000	32345.	0.74500
Indonesia	850.00	6.0000	0.10530D 06	0.76400
Australia	900.00	9.0000	11360.	0.31600
Papua/Ne.	910.00	9.0000	2149.0	0.42100
New Zealand	920.00	9.0000	2640.0	0.37300

Country Code*	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
2.0000	3574.5	0.49100	2.7200	509.00
6.0000	1153.8	0.37000D-01	0.10000D 07	5.0000
20.000	2472.6	0.61600	2.7800	18.000
40.000	393.10	0.10000D 07	-3.0200	0.0
41.000	74.400	0.0	0.10000D 07	2.0000
42.000	265.30	0.43000	1.1600	51.000
51.000	497.20	0.47900	2.1600	1.0000
52.000	646.20	0.45700	0.10000D 07	0.0
53.000	373.00	0.56500	0.10000D 07	0.0
70.000	455.20	0.30300	1.4600	8.0000
90.000	317.70	0.57200	0.10000D 07	1.0000
91.000	220.70	0.50300	0.10000D 07	0.0
92.000	271.20	0.56600	2.2600	0.0
93.000	342.60	0.46300	0.10000D 07	7.0000
94.000	413.10	0.54100	2.6800	0.0
95.000	484.60	0.71300	1.6900	37.000
100.00	282.40	0.75300	2.2100	20.000
101.00	881.90	0.76000	2.5400	22.000
110.00	306.00	0.61700	0.10000D 07	39.000
130.00	215.60	0.74100	2.1200	20.000

*Country codes are defined in Table 4.

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
135.00	367.10	0.73800	2.7600	4.0000
140.00	267.20	0.43800	1.2500	27.000
145.00	163.60	0.35800	2.3900	24.000
150.00	218.20	0.49600	0.10000D 07	1.0000
155.00	565.20	0.70400	1.1900	9.0000
160.00	769.70	0.10000D 07	0.92000	36.000
165.00	572.70	0.56500	2.6100	11.000
200.00	1818.1	0.5[illegible]700	2.3700	13.000
205.00	979.50	0.62400	2.3700	1.0000
210.00	1554.3	0.83000	3.0200	2.0000
211.00	1803.8	0.72500	2.5300	5.0000
212.00	1978.9	0.69700	0.10000D 07	0.0
220.00	1924.0	0.66800	1.9200	3.0000
225.00	2332.9	0.81500	3.0600	1.0000
230.00	561.40	0.0	-1.0000	34.000
235.00	405.60	0.0	-1.4300	3.0000
255.00	1900.9	0.58200	2.430	11.000
265.00	1260.0	0.0	-3.2000	1.0000
290.00	977.90	0.0	-2.5400	3.0000
305.00	1286.8	0.53500	2.1000	1.0000

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
310.00	1093.8	0.0	-1.5800	0.0
315.00	1560.8	0.0	-2.5100	9.0000
325.00	1104.1	0.73400	1.9800	17.000
338.00	501.60	0.50300	0.10000D 07	5.0000
339.00	365.70	0.0	-3.5100	0.0
345.00	451.10	0.0	0.800000-01	2.0000
350.00	687.30	0.10000D 07	1.3700	24.000
352.00	695.30	0.10000D 07	1.9600	15.000
355.00	829.30	0.0	-2.7100	2.0000
360.00	777.80	0.0	-3.2000	0.0
365.00	1357.3	0.0	-3.0800	8.0000
375.00	1749.1	0.80300	2.7200	0.0
380.00	2549.0	0.69300	2.8300	5.0000
385.00	1890.4	0.72000	3.0600	0.0
390.00	2120.2	0.75200	2.6500	0.0
395.00	2468.8	0.72500	0.10000D 07	0.0
420.00	84.800	0.40100	0.10000D 07	0.0
432.00	64.900	0.0	0.10000D 07	0.0
433.00	194.80	0.0	-1.9900	12.000
435.00	69.800	0.10000D 07	0.10000D 07	10.000

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
435.00	121.00	0.0	0.10000D 07	4.0000
436.00	75.100	0.0	0.10000D 07	0.0
437.00	251.10	0.0	0.10000D 07	0.0
438.00	73.400	0.0	0.10000D 07	1.0000
439.00	52.900	0.10000D 07	-3.0900	0.0
450.00	199.10	0.0	0.10000D 07	0.0
451.00	154.10	0.10000D 07	0.10000D 07	6.0000
452.00	285.10	0.10000D 07	0.34000	5.0000
461.00	95.200	0.10000D 07	0.10000D 07	5.0000
471.00	128.10	0.0	-2.4200	0.0
475.00	84.400	0.10000D 07	0.45000	124.00
481.00	280.80	0.0	0.10000D 07	8.0000
482.00	90.200	0.10000D 07	0.10000D 07	0.0
483.00	71.700	0.0	-2.7200	16.000
484.00	164.30	0.0	0.10000D 07	20.000
490.00	81.500	0.10000D 07	-0.46000	24.000
500.00	87.100	0.41400	0.77000	61.000
501.00	90.300	0.10100	1.2000	39.000
510.00	71.400	0.0	0.87000	1.0000
516.00	43.600	0.10000D 07	0.10000D 07	0.0
517.00	49.800	0.0	0.10000D 07	0.0

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
520.00	60.000	0.28000	0.10000D 07	6.0000
530.00	45.100	0.10000D 07	-3.1000	0.0
540.00	99.900	0.10000D 07	0.10000D 07	0.0
541.00	74.000	0.10000D 07	0.10000D 07	0.0
551.00	213.50	0.40200	1.0500	36.000
552.00	239.70	0.38500	1.1600	40.000
553.00	47.000	0.0	0.52000	11.000
560.00	610.70	0.39700	1.0700	10.000
570.00	58.500	0.49400	0.10000D 07	7.0000
571.00	60.800	0.18100	0.10000D 07	0.0
580.00	90.000	0.55000D-01	0.10000D 07	0.0
590.00	261.80	0.48100	0.10000D 07	5.0000
600.00	195.50	0.10000D 07	1.0000	15.000
615.00	221.50	0.10000D 07	-3.2600	7.0000
616.00	214.10	0.0	-0.67000	11.000
620.00	541.70	0.10000D 07	0.10000D 07	5.0000
625.00	100.40	0.70900	0.10000D 07	36.000
630.00	251.40	0.27600	-1.0300	21.000
640.00	282.30	0.62000	1.6600	8.0000
645.00	231.10	0.10000D 07	-1.3600	0.0
651.00	158.80	0.0	-2.3200	1.0000

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
652.00	212.30	0.10000D 07	-2.0000	25.000
660.00	436.60	0.94500	1.1800	6.0000
663.00	255.60	0.10000D 07	-0.52000	11.000
666.00	1422.2	0.79400	1.7500	8.0000
670.00	225.30	0.10000D 07	0.10000D 07	0.0
678.00	97.800	0.10000D 07	0.10000D 07	5.0000
680.00	124.90	0.10000D 07	0.10000D 07	51.000
690.00	3389.7	0.10000D 07	0.10000D 07	0.0
700.00	83.100	0.10000D 07	-1.3000	5.0000
710.00	108.60	0.0	-3.1600	118.00
712.00	452.90	0.0	0.10000D 07	1.0000
713.00	226.90	0.10000D 07	0.61000	0.0
720.00	420.60	0.90000	0.10000D 07	46.000
731.00	206.60	0.0	-3.3900	0.0
732.00	104.80	0.38700	0.42000	58.000
740.00	861.00	0.58600	2.4400	16.000
750.00	101.10	0.68200	0.98000	232.00
770.00	108.50	0.37700	-0.20000D-01	67.000
775.00	71.200	0.10000D 07	0.38000	36.000
780.00	144.40	0.72500	1.1400	8.0000
781.00	0.10000D 07	0.10000D 07	0.10000D 07	5.0000

Country Code	GNP Per Capita	Party Fractionalization	Press Freedom Index	Riots 1963-1967
700.00	72.900	0.100000D 07	-0.60000	2.0000
800.00	128.50	0.100000D 07	0.70000	0.0
811.00	135.70	0.0	-1.1500	1.0000
812.00	86.500	0.100000D 07	-0.47000	0.0
816.00	100.00	0.0	0.100000D 07	0.0
817.00	149.70	0.100000D 07	-0.45000	87.000
820.00	305.80	0.58900	1.6600	65.000
830.00	500.30	0.41600	1.8100	3.0000
840.00	154.90	0.47500	2.6600	4.0000
850.00	99.200	0.87700	-0.40000	53.000
900.00	2001.7	0.62500	2.5300	1.0000
910.00	38.200	0.100000D 07	0.100000D 07	0.0
920.00	1979.9	0.51200	2.2400	0.0

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
2.0000	246.00	255.00	786.00	99.000
6.0000	2.0000	8.0000	5.0000	0.10000D 07
20.000	6.0000	22.000	16.000	99.000
40.000	364.00	67.000	0.0	0.10000D 07
41.000	136.00	64.000	0.0	10.000
42.000	4077.0	202.00	33.000	64.500
51.000	9.0000	13.000	0.0	85.000
52.000	0.0	1.0000	0.0	80.000
53.000	0.0	0.0	0.0	95.000
70.000	105.00	24.000	5.0000	0.10000D 07
90.000	126.00	105.00	1.0000	38.000
91.000	3.0000	8.0000	0.0	0.10000D 07
92.000	0.0	1.0000	0.0	0.10000D 07
93.000	151.00	16.000	3.0000	49.600
94.000	0.0	0.0	0.0	84.300
95.000	47.000	14.000	18.000	0.10000D 07
100.00	970.00	151.00	21.000	65.000
101.00	155.00	316.00	1.0000	80.000
110.00	320.00	143.00	20.000	86.000
130.00	13.000	18.000	12.000	0.10000D 07

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
135.00	558.00	94.000	1.0000	0.100000D 07
140.00	31.000	41.000	5.0000	0.100000D 07
145.00	516.00	82.000	11.000	32.000
150.00	4.0000	6.0000	0.0	68.000
155.00	10.000	13.000	12.000	0.100000D 07
160.00	43.000	54.000	30.000	0.100000D 07
165.00	0.0	2.0000	3.0000	90.300
200.00	0.0	16.000	46.000	99.000
205.00	0.0	7.0000	12.000	96.000
210.00	0.0	9.0000	4.0000	99.000
211.00	0.0	6.0000	9.0000	99.000
212.00	0.0	0.0	0.0	99.000
220.00	2.0000	12.000	31.000	99.000
225.00	0.0	2.0000	0.0	100.00
230.00	2.0000	31.000	46.000	0.100000D 07
235.00	2.0000	8.0000	4.0000	0.100000D 07
255.00	4.0000	16.000	86.000	99.000
265.00	11.000	4.0000	1.0000	99.000
290.00	0.0	5.0000	14.000	99.000
305.00	1.0000	1.0000	1.0000	98.000

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
310.00	0.0	1.0000	0.0	98.000
315.00	1.0000	2.0000	1.0000	99.0-0
325.00	4.0000	49.000	27.000	0.10000D 07
338.00	0.0	1.0000	6.0000	80.000
339.00	4.0000	0.0	0.0	71.500
345.00	6.0000	3.0000	0.0	0.10000D 07
350.00	5.0000	20.000	36.000	82.000
352.00	430.00	245.00	6.0000	76.000
355.00	1.0000	2.0000	1.0000	85.300
360.00	0.0	1.0000	1.0000	99.000
365.00	10.000	10.000	4.0000	99.000
375.00	0.0	0.0	0.0	99.800
380.00	0.0	0.0	1.0000	100.00
385.00	0.0	1.0000	12.000	100.00
390.00	0.0	0.0	1.0000	100.00
395.00	0.0	0.0	1.0000	100.00
420.00	0.0	0.0	0.0	10.000
432.00	3.0000	2.0000	1.0000	5.0000
433.00	13.000	0.0	2.0000	7.5000
434.00	32.000	6.0000	11.000	5.0000

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
435.00	0.0	0.0	0.0	2.5000
436.00	22.000	7.0000	0.0	2.5000
437.00	1.0000	0.0	0.0	20.000
438.00	0.0	0.0	0.0	10.000
439.00	0.0	5.0000	5.0000	7.5000
450.00	0.0	0.0	1.0000	10.000
451.00	4.0000	0.0	0.0	10.000
452.00	26.000	11.000	0.0	22.500
461.00	1.0000	2.0000	1.0000	7.5000
471.00	70001.	0.0	0.0	10.000
475.00	9117.0	378.00	10.000	32.500
481.00	39.000	6.0000	7.0000	7.5000
482.00	2.0000	0.0	0.0	15.000
483.00	75.000	1.0000	0.0	5.0000
484.00	9.0000	14.000	17.000	22.500
490.00	8754.0	428.00	3.0000	35.000
500.00	3015.0	39.000	0.0	25.000
501.00	298.00	74.000	1.0000	22.500
510.00	20.000	10.000	2.0000	17.500
516.00	106.00	6.0000	0.0	0.100000 07
517.00	26307.	15.000	0.0	7.5000

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
520.00	9.0000	5.0000	0.0	5.0000
530.00	178.00	28.000	0.0	5.0000
540.00	475.00	119.00	0.0	3.0000
541.00	1580.0	85.000	0.0	2.0000
551.00	1280.0	96.000	0.0	41.400
552.00	284.00	91.000	40.000	20.000
553.00	21.000	31.000	0.0	7.5000
560.00	82.000	27.000	17.000	35.000
570.00	9.0000	1.0000	1.0000	35.000
571.00	0.0	1.0000	0.0	20.000
580.00	0.0	0.0	0.0	35.000
590.00	2.0000	5.0000	0.0	60.000
600.00	40.000	14.000	2.0000	12.500
615.00	181.00	71.000	27.000	15.000
616.00	2.0000	1.0000	3.0000	30.000
620.00	15.000	14.000	6.0000	30.000
625.00	2128.0	98.000	38.000	12.500
630.00	204.00	10.000	9.0000	23.000
640.00	49.000	5.0000	14.000	46.000
645.00	3715.0	170.00	7.0000	20.000
651.00	0.0	0.0	5.0000	30.000

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
652.00	1479.0	37.000	24.000	35.000
660.00	16.000	11.000	2.0000	86.000
663.00	23.000	6.0000	28.000	35.000
666.00	15.000	46.000	14.000	90.000
670.00	0.0	7.0000	0.0	10.000
678.00	3238.0	113.00	0.0	0.10000D 07
680.00	498.00	397.00	22.000	0.10000D 07
690.00	0.0	0.0	0.0	47.000
700.00	0.0	0.0	0.0	7.5000
710.00	1654.0	454.00	2.0000	50.000
712.00	0.0	0.0	0.0	72.200
713.00	470.00	8.0000	0.0	75.000
720.00	95.000	183.00	14.000	71.000
731.00	7.0000	1.0000	0.0	0.10000D 07
732.00	35.000	17.000	84.000	71.000
740.00	0.0	2.0000	13.000	99.000
750.00	1494.0	1381.0	106.00	28.000
770.00	2300.0	53.000	46.000	20.000
775.00	419.00	61.000	10.000	60.000
780.00	1.0000	0.0	0.0	75.000
781.00	0.0	1.0000	0.0	0.10000D 07

Country Code	Deaths from Political Violence	Armed Attacks	Anti-Government Demonstrations	Literacy
790.00	0.0	1.0000	2.0000	7.5000
800.00	94.000	43.000	0.0	70.000
811.00	0.0	10.000	0.0	41.000
812.00	2164.0	200.00	0.0	15.000
816.00	1001.0	0.0	0.0	0.10000D 07
817.00	0.144720 06	2948.0	194.00	45.000
820.00	148.00	19.000	20.000	43.000
830.00	0.0	0.0	1.0000	60.000
840.00	243.00	154.00	21.000	72.000
850.00	0.575890 06	200.00	37.000	43.000
900.00	0.0	1.0000	13.000	98.000
910.00	0.0	1.0000	0.0	0.10000D 07
920.00	0.0	1.0000	12.000	99.000

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
2.0000	9201.0	188.55	67.000	2782.0
6.0000	2125.0	57.620	0.10000D 07	0.10000D 07
20.000	7653.0	155.02	53.000	388.00
40.000	950.00	29.620	32.000	216.00
41.000	33.000	0.91000	41.000	53.000
42.000	194.00	6.0800	46.000	82.000
51.000	887.00	11.740	25.000	25.000
52.000	3482.0	16.280	31.000	18.000
53.000	422.00	11.500	0.10000D 07	0.10000D 07
70.000	977.00	8.5500	61.000	186.00
90.000	182.00	4.7300	48.000	67.000
91.000	151.00	4.8200	43.000	34.000
92.000	168.00	6.8300	42.000	70.000
93.000	234.00	5.4400	47.000	78.000
94.000	306.00	14.650	43.000	77.000
95.000	1292.0	17.690	44.000	103.00
100.00	532.00	6.6400	48.000	127.00
101.00	2974.0	38.980	49.000	133.00
110.00	811.00	12.750	0.10000D 07	0.10000D 07
130.00	212.00	6.6900	53.000	102.00

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
135.00	588.00	8.5800	50.000	131.00
140.00	347.00	4.6300	62.000	300.00
145.00	185.00	6.2200	39.000	82.000
150.00	126.00	3.4500	41.000	50.000
155.00	1089.0	15.170	49.000	161.00
160.00	1341.0	26.400	58.000	301.00
165.00	916.00	6.6300	44.000	106.00
200.00	5151.0	93.310	93.000	1403.0
205.00	2284.0	32.020	47.000	46.000
210.00	3271.0	85.010	94.000	352.00
211.00	4727.0	91.720	91.000	279.00
212.00	4653.0	87.610	66.000	17.000
220.00	2951.0	70.300	107.00	1152.0
225.00	2668.0	83.100	63.000	240.00
230.00	1023.0	7.7200	67.000	306.00
235.00	521.00	7.8900	55.000	137.00
255.00	4234.0	64.900	88.000	671.00
265.00	5460.0	79.770	5.0000	153.00
290.00	3504.0	53.940	42.000	386.00
305.00	2630.0	46.590	67.000	162.00

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
310.00	7812.0	51.640	34.000	264.00
315.00	5676.0	76.770	39.000	422.00
325.00	1787.0	60.340	89.000	511.00
338.00	727.00	21.630	23.000	37.000
339.00	347.00	0.100000 07	17.000	56.000
345.00	1192.0	21.220	50.000	280.00
350.00	784.00	11.690	60.000	218.00
352.00	916.00	16.840	35.000	34.000
355.00	2571.0	31.100	33.000	247.00
360.00	2035.0	40.210	40.000	360.00
365.00	3611.0	99.130	38.000	1345.0
375.00	2679.0	104.29	50.000	139.00
390.00	4506.0	165.24	65.000	237.00
385.00	3588.0	100.19	68.000	156.00
390.00	4172.0	122.74	71.000	201.00
395.00	3963.0	78.130	42.000	18.000
420.00	39.000	3.4400	0.100000 07	0.100000 07
432.00	21.000	3.0000	30.000	55.000
433.00	145.00	6.3000	43.000	72.000
434.00	30.000	1.6900	34.000	19.000

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
435.00	48.000	4.7600	33.000	11.000
436.00	13.000	1.2000	38.000	15.000
437.00	152.00	9.1300	43.000	39.000
438.00	98.000	4.0000	23.000	63.000
439.00	10.000	1.0300	37.000	33.000
450.00	259.00	4.6700	23.000	54.000
451.00	68.000	3.4900	32.000	35.000
452.00	104.00	12.020	40.000	212.00
461.00	41.000	1.8300	31.000	16.000
471.00	71.000	3.2500	42.000	41.000
475.00	44.000	1.4600	47.000	151.00
481.00	240.00	15.120	33.000	10.000
482.00	38.000	3.7000	31.000	16.000
483.00	15.000	1.5100	33.000	16.000
484.00	148.00	3.5700	35.000	22.000
490.00	83.000	4.3800	30.000	33.000
500.00	42.000	3.8400	36.000	6.0000
501.00	124.00	3.7400	37.000	2.0000
510.00	55.000	2.5700	37.000	9.0000
516.00	12.000	1.3700	23.000	11.000
517.00	15.000	1.0600	26.000	8.0000

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
520.00	27.000	0.80000	20.000	39.000
530.00	10.000	0.44000	24.000	81.000
540.00	117.00	1.3600	0.100000 07	0.10000D 07
541.00	106.00	1.2400	0.10000D 07	0.10000D 07
551.00	487.00	4.0400	23.000	0.10000D 07
552.00	651.00	3.9900	10.000	0.10000D 07
553.00	42.000	2.7900	26.000	0.10000D 07
560.00	2716.0	14.440	29.000	163.00
570.00	0.100000 07	2.4400	0.100000 07	0.10000D 07
571.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
580.00	42.000	5.1400	34.000	19.000
590.00	179.00	8.5900	0.100000 07	0.10000D 07
600.00	153.00	7.4300	45.000	129.00
615.00	300.00	9.9400	33.000	102.00
616.00	200.00	8.8400	42.000	99.000
620.00	327.00	13.610	27.000	68.000
625.00	69.000	3.4700	33.000	93.000
630.00	391.00	7.2600	33.000	248.00
640.00	348.00	7.1100	55.000	392.00
645.00	581.00	13.440	26.000	140.00
651.00	301.00	8.5800	51.000	550.00

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
652.00	303.00	13.580	26.000	118.00
660.00	747.00	14.040	34.000	91.000
663.00	291.00	6.5800	23.000	82.000
666.00	2239.0	65.940	42.000	292.00
670.00	311.00	13.190	21.000	155.00
678.00	10.000	0.20000	11.000	49.000
680.00	0.100000 07	2.8900	0.100000 07	0.100000 07
690.00	12077.	100.64	22.000	56.000
700.00	25.000	0.80000	21.000	83.000
710.00	461.00	4.0000	2.0000	389.00
712.00	0.100000 07	0.100000 07	10.000	43.000
713.00	654.00	6.2800	28.000	268.00
720.00	603.00	12.090	0.100000 07	0.100000 07
731.00	0.100000 07	7.4400	2.0000	111.00
732.00	445.00	3.1400	30.000	155.00
740.00	1783.0	41.970	53.000	638.00
750.00	172.00	2.0600	58.000	467.00
770.00	90.000	1.6000	49.000	188.00
775.00	47.000	1.5800	25.000	85.000
780.00	114.00	6.0500	35.000	66.000
781.00	0.100000 07	0.100000 07	0.100000 07	0.100000 07

Country Code	Energy Consumption Per Capita	Education Expenditures Per Capita	International Organization Memberships	Diplomats Abroad
790.00	8.0000	0.20000	19.000	31.000
800.00	110.00	2.8100	37.000	191.00
811.00	45.000	5.0700	22.000	53.000
812.00	43.000	2.5000	22.000	46.000
816.00	0.100000 07	6.7900	3.0000	81.000
817.00	73.000	4.9600	27.000	107.00
820.00	357.00	12.550	33.000	65.000
830.00	578.00	22.830	0.100000 07	0.100000 07
840.00	209.00	8.7200	33.000	154.00
850.00	111.00	0.87000	31.000	348.00
900.00	4795.0	69.370	49.000	280.00
910.00	74.000	0.100000 07	0.100000 07	0.100000 07
920.00	2530.0	67.050	41.000	91.000

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
2.0000	266.45	12.000	1.0000	0.0
6.0000	0.100000 07	0.100000 07	0.100000 07	0.100000 07
20.000	78.300	2.0000	0.0	0.0
40.000	27.910	6.0000	4.0000	0.0
41.000	2.0500	3.0000	3.0000	0.0
42.000	9.6700	7.0000	1.0000	1.0000
51.000	2.8000	0.100000 07	0.100000 07	0.100000 07
52.000	3.0800	0.100000 07	0.100000 07	0.100000 07
53.000	0.100000 07	0.100000 07	0.100000 07	0.100000 07
70.000	3.5800	5.0000	0.0	0.0
90.000	3.1500	1.0000	1.0000	0.0
91.000	3.0600	1.0000	1.0000	0.0
92.000	3.4200	2.0000	0.0	0.0
93.000	4.8300	0.0	2.0000	0.0
94.000	1.4000	0.0	0.0	0.0
95.000	0.77000	1.0000	0.0	0.0
100.00	5.6500	0.0	2.0000	0.0
101.00	19.950	11.000	6.0000	0.0
110.00	0.100000 07	0.100000 07	0.100000 07	0.100000 07
130.00	4.7200	3.0000	1.0000	0.0

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
135.00	10.560	6.0000	3.0000	0.0
140.00	7.8000	11.000	0.0	0.0
145.00	3.5200	10.000	0.0	1.0000
150.00	6.4000	2.0000	1.0000	1.0000
155.00	11.910	0.0	1.0000	0.0
160.00	12.170	15.000	0.0	0.0
165.00	8.4700	2.0000	0.0	0.0
200.00	107.24	2.0000	0.0	0.0
205.00	11.490	0.0	0.0	0.0
210.00	61.020	2.0000	0.0	0.0
211.00	52.940	2.0000	0.0	0.0
212.00	30.210	0.0	0.0	0.0
220.00	104.76	8.0000	4.0000	0.0
225.00	59.880	0.0	0.0	0.0
230.00	18.570	8.0000	1.0000	0.0
235.00	25.220	7.0000	0.0	0.0
255.00	84.330	3.0000	0.0	0.0
265.00	58.480	7.0000	0.0	0.0
290.00	53.980	10.000	0.0	0.0
305.00	16.260	0.0	0.0	0.0

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
310.00	29.560	1.0000	0.0	0.0
315.00	91.810	0.0	0.0	0.0
325.00	37.600	1.0000	0.0	0.0
338.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
339.00	37.530	0.0	0.0	0.0
345.00	20.300	0.0	0.0	0.0
350.00	24.560	11.000	0.0	0.0
352.00	15.150	3.0000	0.0	3.0000
355.00	24.390	0.0	0.0	0.0
360.00	26.280	0.0	0.0	0.0
365.00	122.15	1.0000	0.0	0.0
375.00	30.140	0.0	0.0	0.0
380.00	109.00	0.0	0.0	0.0
385.00	71.450	1.0000	0.0	0.0
390.00	60.110	0.0	0.0	0.0
395.00	0.0	0.0	0.0	0.0
420.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
432.00	2.1900	0.10000D 07	0.10000D 07	0.10000D 07
433.00	4.3000	0.10000D 07	0.10000D 07	0.10000D 07
434.00	1.6900	0.10000D 07	0.10000D 07	0.10000D 07

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
435.00	1.9000	0.10000D 07	0.10000D 07	0.10000D 07
436.00	1.8000	0.10000D 07	0.10000D 07	0.10000D 07
437.00	3.3900	0.10000D 07	0.10000D 07	0.10000D 07
438.00	3.1400	0.10000D 07	0.10000D 07	0.10000D 07
439.00	0.62000	0.10000D 07	0.10000D 07	0.10000D 07
450.00	2.8000	0.0	0.0	0.0
451.00	1.3100	0.10000D 07	0.10000D 07	0.10000D 07
452.00	4.6500	2.0000	0.0	0.0
461.00	1.8300	0.10000D 07	0.10000D 07	0.10000D 07
471.00	2.8700	0.10000D 07	0.10000D 07	0.10000D 07
475.00	1.1500	0.10000D 07	0.10000D 07	0.10000D 07
481.00	6.4800	0.10000D 07	0.10000D 07	0.10000D 07
482.00	2.2200	0.10000D 07	0.10000D 07	0.10000D 07
483.00	0.91000	0.10000D 07	0.10000D 07	0.10000D 07
484.00	5.9500	0.10000D 07	0.10000D 07	0.10000D 07
490.00	4.2900	0.10000D 07	0.10000D 07	0.10000D 07
500.00	1.1900	0.10000D 07	0.10000D 07	0.10000D 07
501.00	0.85000	0.10000D 07	0.10000D 07	0.10000D 07
510.00	0.57000	0.10000D 07	0.10000D 07	0.10000D 07
516.00	0.31000	0.10000D 07	0.10000D 07	0.10000D 07
517.00	0.32000	0.10000D 07	0.10000D 07	0.10000D 07

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
520.00	3.6000	0.10000D 07	0.10000D 07	0.10000D 07
530.00	1.3300	1.0000	0.0	0.0
540.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
541.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
551.00	2.4300	0.10000D 07	0.10000D 07	0.10000D 07
552.00	2.3500	0.10000D 07	0.10000D 07	0.10000D 07
553.00	0.25000	0.10000D 07	0.10000D 07	0.10000D 07
560.00	17.910	21.000	0.0	0.0
570.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
571.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
580.00	1.7100	0.10000D 07	0.10000D 07	0.10000D 07
590.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
600.00	7.7300	4.0000	1.0000	0.0
615.00	10.690	0.10000D 07	0.10000D 07	0.10000D 07
616.00	3.1700	1.0000	0.0	1.0000
620.00	17.320	3.0000	0.0	0.0
625.00	2.4400	4.0000	0.0	0.0
630.00	12.630	1.0000	0.0	0.0
640.00	13.670	3.0000	0.0	0.0
645.00	23.840	4.0000	0.0	1.0000
651.00	13.240	9.0000	0.0	0.0

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
652.00	17.920	13.000	0.0	1.0000
660.00	11.700	3.0000	0.0	0.0
663.00	30.360	0.0	0.0	0.0
666.00	161.14	1.0000	0.0	0.0
670.00	19.410	0.0	0.0	0.0
678.00	2.2000	0.100000D 07	0.100000D 07	0.100000D 07
680.00	0.100000D 07	0.100000D 07	0.100000D 07	0.100000D 07
690.00	66.380	0.100000D 07	0.100000D 07	0.100000D 07
700.00	1.5300	1.0000	0.0	0.0
710.00	8.5700	0.0	0.0	0.0
712.00	22.640	0.100000D 07	0.100000D 07	0.100000D 07
713.00	17.540	1.0000	0.0	0.0
720.00	0.100000D 07	0.100000D 07	0.100000D 07	0.100000D 07
731.00	14.460	0.100000D 07	0.100000D 07	0.100000D 07
732.00	3.9800	4.0000	0.0	0.0
740.00	7.9700	0.0	0.0	0.0
750.00	4.2700	5.0000	2.0000	0.0
770.00	5.7200	6.0000	0.0	0.0
775.00	4.4500	17.000	3.0000	0.0
780.00	1.1600	8.0000	0.0	0.0
781.00	0.100000D 07	0.100000D 07	0.100000D 07	0.100000D 07

Country Code	Defense Expenditures Per Capita	Government Action Against Political Groups	Guerrilla War	Civil War
790.00	0.50000	0.10000D 07	0.10000D 07	0.10000D 07
800.00	2.7500	0.0	3.0000	0.0
811.00	8.6700	0.0	0.0	0.0
812.00	13.500	0.0	1.0000	5.0000
816.00	19.740	0.10000D 07	0.10000D 07	0.10000D 07
817.00	16.000	0.10000D 07	0.10000D 07	0.10000D 07
820.00	12.440	0.0	1.0000	0.0
830.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
840.00	2.3500	1.0000	1.0000	0.0
850.00	9.5000	19.000	5.0000	1.0000
900.00	73.770	0.0	0.0	0.0
910.00	0.10000D 07	0.10000D 07	0.10000D 07	0.10000D 07
920.00	42.800	0.0	0.0	0.0

Table A-2.

THE WEISDAT/T DATA-FILE

TIME INDEX	TIME	R-TOTO	R-COPO	R-CONO
1	6601.0	32.000	22.000	10.000
2	6602.0	27.000	16.000	11.000
3	6603.0	31.000	20.000	11.000
4	6604.0	32.000	24.000	8.0000
5	6605.0	52.000	31.000	21.000
6	6606.0	54.000	44.000	10.000
7	6607.0	46.000	31.000	15.000
8	6608.0	36.000	18.000	18.000
9	6609.0	37.000	18.000	19.000
10	6610.0	53.000	27.000	26.000
11	6611.0	53.000	30.000	23.000
12	6612.0	49.000	35.000	14.000
13	6701.0	35.000	19.000	16.000
14	6702.0	69.000	37.000	32.000
15	6703.0	25.000	15.000	10.000
16	6704.0	30.000	19.000	11.000
17	6705.0	43.000	22.000	21.000
18	6706.0	72.000	45.000	27.000
19	6707.0	45.000	32.000	13.000
20	6708.0	29.000	13.000	16.000
21	6709.0	26.000	18.000	8.0000
22	6710.0	29.000	24.000	5.0000
23	6711.0	29.000	18.000	11.000
24	6712.0	20.000	16.000	4.0000
25	6801.0	44.000	34.000	10.000
26	6802.0	39.000	24.000	15.000
27	6803.0	36.000	19.000	17.000
28	6804.0	45.000	29.000	16.000

TIME INDEX	TIME	R-TOTO	R-COPO	R-CONO
29	6805.0	63.000	36.000	27.000
30	6806.0	43.000	33.000	10.000
31	6807.0	111.00	66.000	45.000
32	6808.0	64.000	28.000	36.000
33	6809.0	76.000	33.000	43.000
34	6810.0	38.000	28.000	10.000
35	6811.0	35.000	24.000	11.000
36	6812.0	47.000	26.000	21.000
37	6901.0	61.000	51.000	10.000
38	6902.0	53.000	38.000	15.000
39	6903.0	77.000	36.000	41.000
40	6904.0	65.000	47.000	18.000
41	6905.0	54.000	43.000	11.000
42	6906.0	22.000	13.000	9.0000
43	6907.0	42.000	36.000	6.0000
44	6908.0	34.000	16.000	18.000
45	6909.0	45.000	32.000	13.000
46	6910.0	76.000	62.000	14.000
47	6911.0	68.000	49.000	19.000
48	6912.0	34.000	25.000	9.0000
49	7001.0	27.000	15.000	12.000
50	7002.0	69.000	45.000	24.000
51	7003.0	50.000	28.000	22.000
52	7004.0	59.000	42.000	17.000
53	7005.0	36.000	19.000	17.000
54	7006.0	60.000	40.000	20.000
55	7007.0	45.000	37.000	8.0000
56	7008.0	53.000	41.000	12.000
57	7009.0	54.000	35.000	19.000

TIME INDEX	R-TOTI	R-COPI	R-CONI	I-TOTO
1	36.000	21.000	15.000	2.0000
2	19.000	11.000	8.0000	5.0000
3	29.000	15.000	12.000	7.0000
4	26.000	18.000	8.0000	6.0000
5	35.000	21.000	14.000	12.000
6	35.000	28.000	7.0000	11.000
7	39.000	24.000	15.000	11.000
8	24.000	11.000	13.000	15.000
9	29.000	20.000	9.0000	5.0000
10	39.000	30.000	9.0000	30.000
11	41.000	21.000	20.000	23.000
12	18.000	11.000	7.0000	5.0000
13	27.000	14.000	13.000	21.000
14	36.000	22.000	14.000	7.0000
15	19.000	9.0000	10.000	5.0000
16	26.000	18.000	8.0000	14.000
17	20.000	11.000	9.0000	36.000
18	50.000	27.000	23.000	77.000
19	24.000	15.000	9.0000	63.000
20	22.000	8.0000	14.000	20.000
21	25.000	13.000	12.000	27.000
22	19.000	13.000	6.0000	34.000
23	22.000	15.000	7.0000	25.000
24	14.000	10.000	4.0000	11.000
25	21.000	17.000	4.0000	35.000
26	25.000	10.000	15.000	30.000
27	19.000	15.000	4.0000	25.000
28	33.000	23.000	10.000	43.000

TIME INDEX	R-TOTI	R-COPI	R-CONI	I-TOTO
29	41.000	31.000	10.000	22.000
30	32.000	25.000	7.0000	24.000
31	55.000	37.000	18.000	19.000
32	70.000	29.000	41.000	25.000
33	56.000	28.000	28.000	35.000
34	66.000	31.000	35.000	33.000
35	34.000	18.000	16.000	23.000
36	28.000	21.000	7.0000	55.000
37	48.000	33.000	15.000	39.000
38	44.000	28.000	16.000	33.000
39	76.000	30.000	46.000	63.000
40	45.000	25.000	20.000	65.000
41	49.000	27.000	22.000	41.000
42	13.000	8.0000	5.0000	47.000
43	28.000	21.000	7.0000	47.000
44	30.000	13.000	17.000	54.000
45	34.000	23.000	11.000	69.000
46	57.000	38.000	19.000	49.000
47	27.000	21.000	6.0000	41.000
48	26.000	19.000	7.0000	67.000
49	25.000	12.000	13.000	70.000
50	38.000	28.000	10.000	77.000
51	26.000	20.000	6.0000	66.000
52	28.000	20.000	8.0000	48.000
53	22.000	17.000	5.0000	65.000
54	22.000	18.000	4.0000	71.000
55	23.000	21.000	2.0000	63.000
56	33.000	31.000	2.0000	87.000
57	29.000	23.000	6.0000	83.000

TIME INDEX	I-COPO	I-CONO	I-TOTI	I-COPI
1	2.0000	0.0	1.0000	0.0
2	2.0000	3.0000	5.0000	2.0000
3	5.0000	2.0000	4.0000	3.0000
4	2.0000	4.0000	8.0000	4.0000
5	6.0000	6.0000	9.0000	2.0000
6	10.000	1.0000	10.000	10.000
7	10.000	1.0000	7.0000	5.0000
8	6.0000	9.0000	13.000	7.0000
9	2.0000	3.0000	7.0000	0.0
10	15.000	15.000	21.000	7.0000
11	12.000	11.000	22.000	4.0000
12	4.0000	1.0000	3.0000	2.0000
13	9.0000	12.000	16.000	6.0000
14	3.0000	4.0000	5.0000	2.0000
15	3.0000	2.0000	2.0000	2.0000
16	6.0000	8.0000	6.0000	2.0000
17	24.000	12.000	27.000	10.000
18	34.000	43.000	99.000	22.000
19	36.000	27.000	45.000	13.000
20	12.000	8.0000	14.000	9.0000
21	10.000	17.000	22.000	4.0000
22	21.000	13.000	15.000	5.0000
23	9.0000	16.000	17.000	3.0000
24	8.0000	3.0000	13.000	4.0000
25	24.000	11.000	23.000	11.000
26	10.000	10.000	13.000	4.0000
27	15.000	10.000	31.000	4.0000
28	17.000	26.000	26.000	4.0000

TIME INDEX	I-COPC	I-CONO	I-TOTI	I-COPI
29	11.000	11.000	21.000	6.0000
30	9.0000	15.000	20.000	4.0000
31	8.0000	11.000	22.000	8.0000
32	6.0000	19.000	19.000	1.0000
33	13.000	22.000	22.000	5.0000
34	17.000	16.000	23.000	8.0000
35	8.0000	15.000	18.000	4.0000
36	20.000	35.000	54.000	13.000
37	13.000	26.000	23.000	6.0000
38	11.000	22.000	27.000	7.0000
39	30.000	33.000	40.000	13.000
40	25.000	40.000	39.000	7.0000
41	9.0000	32.000	30.000	1.0000
42	7.0000	40.000	30.000	0.0
43	8.0000	39.000	52.000	2.0000
44	13.000	41.000	42.000	3.0000
45	22.000	47.000	45.000	3.0000
46	15.000	33.000	44.000	6.0000
47	6.0000	35.000	35.000	2.0000
48	20.000	47.000	43.000	11.000
49	14.000	56.000	41.000	1.0000
50	21.000	56.000	52.000	9.0000
51	19.000	45.000	42.000	7.0000
52	16.000	32.000	30.000	7.0000
53	11.000	54.000	59.000	6.0000
54	11.000	60.000	64.000	7.0000
55	18.000	45.000	47.000	6.0000
56	34.000	53.000	69.000	17.000
57	44.000	39.000	48.000	17.000

TIME INDEX	I-CONI	A-TOTO	A-COPO	A-COMO
1	1.0000	75.000	58.000	17.000
2	3.0000	90.000	73.000	17.000
3	1.0000	81.000	67.000	14.000
4	4.0000	69.000	58.000	11.000
5	7.0000	86.000	75.000	11.000
6	0.0	104.00	90.000	14.000
7	2.0000	82.000	61.000	21.000
8	6.0000	74.000	51.000	23.000
9	7.0000	88.000	69.000	19.000
10	14.000	72.000	56.000	16.000
11	18.000	105.00	88.000	17.000
12	1.0000	80.000	69.000	11.000
13	10.000	72.000	63.000	9.0000
14	3.0000	81.000	71.000	10.000
15	0.0	59.000	52.000	7.0000
16	4.0000	130.00	108.00	22.000
17	17.000	86.000	65.000	21.000
18	77.000	101.00	78.000	23.000
19	32.000	44.000	34.000	10.000
20	5.0000	68.000	52.000	16.000
21	17.000	53.000	39.000	14.000
22	10.000	76.000	63.000	13.000
23	14.000	71.000	63.000	8.0000
24	9.0000	65.000	57.000	8.0000
25	12.000	120.00	99.000	21.000
26	9.0000	91.000	72.000	19.000
27	27.000	90.000	77.000	13.000
28	22.000	123.00	101.00	22.000

TIME INDEX	I-CONI	A-TOTO	A-COPO	A-CONO
29	15.000	128.00	101.00	27.000
30	16.000	94.000	78.000	16.000
31	14.000	122.00	105.00	17.000
32	18.000	62.000	39.000	23.000
33	18.000	64.000	40.000	24.000
34	15.000	102.00	78.000	24.000
35	14.000	64.000	47.000	17.000
36	41.000	109.00	79.000	30.000
37	17.000	100.00	81.000	19.000
38	20.000	135.00	111.00	24.000
39	27.000	130.00	105.00	25.000
40	32.000	145.00	122.00	23.000
41	20.000	157.00	137.00	20.000
42	30.000	99.000	88.000	11.000
43	50.000	107.00	93.000	14.000
44	39.000	82.000	63.000	19.000
45	42.000	124.00	112.00	12.000
46	38.000	127.00	100.00	27.000
47	33.000	118.00	74.000	44.000
48	32.000	102.00	71.000	31.000
49	40.000	121.00	91.000	30.000
50	43.000	164.00	121.00	43.000
51	35.000	130.00	95.000	35.000
52	23.000	181.00	139.00	42.000
53	53.000	135.00	93.000	42.000
54	57.000	147.00	101.00	46.000
55	41.000	157.00	117.00	40.000
56	51.000	147.00	113.00	34.000
57	31.000	203.00	150.00	53.000

TIME INDEX	A-TOTI	A-COPI	A-CONI	S-TOTL
1	74.000	37.000	37.000	416.00
2	71.000	35.000	36.000	458.00
3	66.000	40.000	26.000	459.00
4	61.000	26.000	35.000	390.00
5	75.000	30.000	45.000	516.00
6	84.000	50.000	34.000	525.00
7	87.000	38.000	49.000	413.00
8	69.000	24.000	45.000	443.00
9	83.000	37.000	46.000	438.00
10	74.000	31.000	43.000	456.00
11	84.000	57.000	27.000	548.00
12	54.000	24.000	30.000	418.00
13	45.000	26.000	19.000	437.00
14	69.000	36.000	33.000	423.00
15	62.000	35.000	27.000	318.00
16	102.00	52.000	50.000	533.00
17	66.000	22.000	44.000	556.00
18	126.00	40.000	86.000	839.00
19	36.000	13.000	23.000	510.00
20	54.000	22.000	32.000	453.00
21	27.000	14.000	13.000	317.00
22	46.000	25.000	21.000	426.00
23	55.000	32.000	23.000	452.00
24	50.000	26.000	24.000	285.00
25	98.000	49.000	49.000	568.00
26	85.000	36.000	49.000	456.00
27	65.000	40.000	25.000	526.00
28	100.00	57.000	43.000	753.00

TIME INDEX	A-TOTI	A-COPI	A-CONI	S-TOTL
29	101.00	63.000	38.000	694.00
30	76.000	40.000	36.000	526.00
31	99.000	57.000	42.000	702.00
32	56.000	28.000	28.000	683.00
33	58.000	28.000	30.000	540.00
34	85.000	47.000	38.000	519.00
35	56.000	34.000	22.000	394.00
36	85.000	40.000	45.000	567.00
37	101.00	70.000	31.000	635.00
38	116.00	67.000	49.000	723.00
39	89.000	64.000	25.000	628.00
40	95.000	59.000	36.000	706.00
41	103.00	61.000	42.000	707.00
42	71.000	34.000	37.000	497.00
43	68.000	40.000	28.000	562.00
44	58.000	35.000	23.000	472.00
45	76.000	40.000	36.000	752.00
46	97.000	51.000	46.000	732.00
47	130.00	49.000	81.000	697.00
48	74.000	29.000	45.000	612.00
49	72.000	37.000	35.000	578.00
50	148.00	67.000	81.000	813.00
51	92.000	33.000	59.000	710.00
52	90.000	47.000	43.000	798.00
53	109.00	53.000	56.000	711.00
54	112.00	35.000	77.000	947.00
55	110.00	47.000	63.000	855.00
56	98.000	43.000	55.000	896.00
57	144.00	63.000	81.000	1274.0

TIME INDEX	S-COOP	S-CONE
1	278.00	138.00
2	311.00	147.00
3	322.00	137.00
4	218.00	109.00
5	355.00	161.00
6	409.00	110.00
7	282.00	131.00
8	308.00	185.00
9	292.00	146.00
10	272.00	184.00
11	376.00	172.00
12	289.00	129.00
13	298.00	139.00
14	298.00	125.00
15	230.00	88.000
16	378.00	155.00
17	351.00	205.00
18	475.00	364.00
19	294.00	216.00
20	301.00	152.00
21	195.00	122.00
22	306.00	120.00
23	327.00	125.00
24	210.00	75.000
25	434.00	134.00
26	316.00	140.00
27	383.00	143.00
28	558.00	195.00
29	477.00	207.00
30	380.00	146.00
31	500.00	202.00
32	397.00	286.00
33	301.00	239.00
34	331.00	188.00
35	249.00	145.00
36	336.00	231.00
37	451.00	184.00
38	477.00	246.00
39	436.00	192.00
40	503.00	203.00
41	504.00	203.00
42	310.00	187.00
43	343.00	219.00
44	277.00	195.00
45	543.00	209.00
46	458.00	274.00
47	368.00	329.00
48	386.00	226.00
49	333.00	245.00
50	481.00	332.00
51	412.00	298.00
52	474.00	324.00
53	387.00	324.00
54	492.00	455.00
55	438.00	417.00
56	505.00	389.00
57	721.00	553.00

Table A-3.

LIST OF ALL DATA IN FILE MIDEAST/T DATA-FILE

Note: Data codes of -0.0 indicate missing data.

Year	TIME	ECAEG	ECAIS	ECAJO	MLAAR	MLAIS	MLAJO	DEXEG
1948	48.000	18.100	0.0	0.0	0.0	0.0	0.0	8.600
1949	49.000	0.0	100.000	0.0	0.0	0.0	0.0	32.700
1950	50.000	0.200	0.0	0.0	0.0	0.0	0.0	34.400
1951	51.000	0.100	35.000	0.100	0.0	0.0	0.0	30.800
1952	52.000	1.200	86.500	5.100	0.0	0.0	0.0	44.200
1953	53.000	12.900	73.600	2.900	0.0	0.0	0.0	36.400
1954	54.000	4.000	74.700	12.900	0.0	0.0	0.0	37.800
1955	55.000	66.300	52.600	8.900	54.000	0.0	0.0	56.000
1956	56.000	32.900	50.600	8.000	61.000	0.0	0.0	85.400
1957	57.000	0.300	41.000	22.000	152.000	0.0	0.0	81.500
1958	58.000	0.0	87.100	37.400	755.000	0.0	85.000	73.700
1959	59.000	49.200	54.800	63.500	191.000	4.000	22.000	13.900
1960	60.000	92.900	56.800	51.000	32.000	5.000	29.000	14.000
1961	61.000	91.100	80.400	67.800	80.000	0.0	19.000	15.000
1962	62.000	199.400	82.100	45.[illegible]	[illegible]	0.0	[illegible]	146.900
1963	63.000	178.400	78.100	55.900	86.000	1.000	25.000	103.000
1964	64.000	118.100	39.900	50.400	119.000	7.000	81.000	116.300
1965	65.000	125.800	57.900	42.100	118.000	177.000	46.000	170.600
1966	66.000	58.000	36.500	44.400	123.000	24.000	88.000	185.100
1967	67.000	0.0	12.200	44.300	873.000	21.000	188.000	215.700

Year	DEXIS	DEXJO	SEAEG	SMAEG	OILEA	GOFIS	GOFEG	GOFJO
1948	0.0	2.500	0.0	0.0	-0.0	27.000	18.000	6.000
1949	14.000	2.900	0.0	0.0	-0.0	8.000	2.000	6.000
1950	23.800	4.300	0.0	0.0	-0.0	7.000	0.0	5.000
1951	29.400	6.500	0.0	0.0	-0.0	13.000	1.000	6.000
1952	38.300	9.300	0.0	0.0	-0.0	5.000	1.000	6.000
1953	46.100	9.100	0.0	0.0	-0.0	7.000	0.0	9.000
1954	50.500	10.200	0.0	0.0	-0.0	28.000	11.000	18.000
1955	50.200	10.200	0.0	90.000	-0.0	34.000	30.000	12.000
1956	58.700	10.600	0.0	90.000	-0.0	35.000	34.000	25.000
1957	142.500	13.500	0.0	75.000	600.000	22.000	2.000	13.000
1958	197.100	13.400	137.500	75.000	637.000	21.000	6.000	10.000
1959	217.100	16.700	135.700	60.000	587.000	13.000	10.000	6.000
1960	251.100	21.300	75.000	60.000	717.000	13.000	7.000	3.000
1961	307.700	18.400	75.000	85.000	450.000	6.000	2.000	3.000
1962	315.000	19.100	75.000	85.000	845.000	15.000	0.0	2.000
1963	410.000	21.100	44.500	110.000	926.000	8.000	1.000	3.000
1964	545.000	21.100	280.000	110.000	867.000	18.000	0.0	7.000
1965	751.600	21.100	88.500	100.000	816.000	20.000	1.000	11.000
1966	850.000	21.600	88.500	100.000	870.000	17.000	1.000	6.000
1967	984.000	23.000	-0.0	480.000	983.000	35.000	19.000	15.000

Year	GUEIS	GUEEG	GUEJO	CIVIS	CIVEG	CIVJO	EGCEG	EGCIS
1948	16.000	2.000	2.000	30.000	10.000	5.000	-0.0	-0.0
1949	2.000	2.000	1.000	4.000	3.000	1.000	-0.0	-0.0
1950	3.000	1.000	0.0	9.000	0.0	2.000	-0.0	-0.0
1951	3.000	0.0	3.000	7.000	3.000	2.000	-0.0	-0.0
1952	1.000	1.000	2.000	5.000	0.0	3.000	-0.0	-0.0
1953	10.000	0.0	12.000	14.000	1.000	10.000	-0.0	-0.0
1954	6.000	6.000	5.000	25.000	7.000	18.000	-0.0	-0.0
1955	2.000	19.000	6.000	11.000	14.000	10.000	5.600	1.970
1956	11.000	19.000	12.000	19.000	18.000	21.000	5.370	1.930
1957	6.000	6.000	9.000	18.000	4.000	14.000	6.020	2.090
1958	1.000	1.000	0.0	15.000	2.000	11.000	5.940	2.250
1959	3.000	9.000	1.000	10.000	1.000	2.000	6.100	2.310
1960	2.000	3.000	0.0	2.000	1.000	1.000	7.530	2.620
1961	1.000	4.000	2.000	0.0	1.000	0.0	7.400	3.000
1962	1.000	2.000	1.000	5.000	1.000	5.000	7.820	3.200
1963	1.000	4.000	2.000	4.000	0.0	1.000	8.340	3.530
1964	3.000	2.000	6.000	3.000	0.0	4.000	9.370	-0.0
1965	3.000	1.000	2.000	7.000	1.000	11.000	9.010	-0.0
1966	5.000	1.000	5.000	5.000	0.0	4.000	9.550	-0.0
1967	9.000	7.000	12.000	25.000	9.000	8.000	8.250	6.040

Year	EGCJO	GEXEG	GEXIS	GEXJO	GNPEG	GNPIS	GNPJO	USEEG
1948	-0.0	94.600	0.0	3.700	-0.0	-0.0	-0.0	51.000
1949	-0.0	157.700	25.700	4.400	-0.0	-0.0	-0.0	55.200
1950	-0.0	163.800	88.400	6.900	-0.0	-0.0	-0.0	36.200
1951	-0.0	170.000	137.800	9.800	-0.0	-0.0	-0.0	78.700
1952	-0.0	209.500	184.200	13.100	905.000	1062.000	-0.0	103.300
1953	-0.0	185.600	264.700	13.400	963.000	1334.000	38.000	79.400
1954	-0.0	224.900	360.200	15.400	1014.000	1762.000	49.000	51.100
1955	0.160	225.800	510.600	16.600	1072.000	2124.000	46.000	62.800
1956	0.200	273.300	662.600	17.600	1125.000	2534.000	63.000	71.700
1957	0.210	351.400	688.700	21.300	1195.000	2943.000	65.000	47.100
1958	0.230	309.600	987.800	23.900	1256.000	1832.000	259.000	50.700
1959	0.290	308.300	1184.300	29.300	1372.000	2063.000	278.000	86.000
1960	0.320	387.700	1296.700	39.300	1467.000	2209.000	296.000	114.800
1961	0.420	582.200	1442.400	35.200	1550.000	2432.000	356.000	134.200
1962	0.490	652.900	1755.300	37.500	1563.000	2721.000	366.000	194.000
1963	0.480	791.700	2035.300	43.500	1740.000	3037.000	385.000	250.500
1964	-0.0	889.100	2582.000	47.600	1953.000	3349.000	450.000	284.100
1965	-0.0	1184.400	2994.600	47.600	2109.000	3584.000	506.000	188.600
1966	-0.0	1216.000	3471.900	47.000	2175.000	3627.000	513.000	212.400
1967	0.570	1316.200	4098.500	69.000	-0.0	-0.0	-0.0	-0.0

Year	USEIS	USEJO	SUEEG	SUEIS	EGEUS	EGESU	ISEUS	ISESU
1948	29.100	3.100	46.200	-0.0	18.500	49.800	5.100	-0.0
1949	97.000	-0.0	2.400	4.800	13.100	12.100	5.800	0.300
1950	105.500	-0.0	16.800	0.100	44.300	25.200	8.300	-0.0
1951	109.300	3.100	20.200	0.100	56.200	7.200	10.200	-0.0
1952	117.100	-0.0	31.100	-0.0	48.400	28.700	10.700	1.200
1953	89.100	-0.0	14.100	-0.0	16.400	11.900	12.200	1.000
1954	79.500	5.400	6.600	1.700	18.900	5.400	14.400	3.100
1955	92.800	7.900	6.600	0.200	26.000	20.200	16.300	1.800
1956	116.700	5.200	22.700	0.400	13.500	16.000	18.800	1.700
1957	108.600	7.100	53.400	-0.0	22.300	89.800	20.200	-0.0
1958	122.900	8.200	83.600	0.600	9.200	82.100	19.500	-0.0
1959	126.400	8.900	77.100	0.300	5.900	81.400	27.500	0.100
1960	143.600	14.200	63.500	-0.0	28.600	88.700	29.300	-0.0
1961	167.900	19.600	79.400	-0.0	29.800	73.000	39.000	-0.0
1962	212.300	17.000	58.200	0.200	25.100	64.000	42.300	0.300
1963	184.600	19.500	49.100	0.300	22.600	101.700	46.500	0.600
1964	207.700	31.300	73.800	0.100	17.900	96.400	54.900	0.500
1965	211.300	23.600	84.000	0.400	19.100	130.400	61.700	0.600
1966	221.600	29.200	93.700	1.000	15.400	142.600	77.400	1.900
1967	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

Year	DEVEG	DEVIS	DEVJO	COLEG	COLIS
1948	-0.0	-0.0	-0.0	93.000	35.000
1949	-0.0	0.500	-0.0	92.000	36.000
1950	-0.0	35.200	-0.0	97.000	33.000
1951	-0.0	68.000	-0.0	106.000	36.000
1952	24.600	82.000	0.0	105.000	56.000
1953	47.600	100.800	1.200	98.000	72.000
1954	27.400	166.700	2.100	94.000	81.000
1955	87.600	226.500	2.700	94.000	85.000
1956	66,300	756.000	2.800	96.000	91.000
1957	45.800	238.800	3.100	100.000	97.000
1958	25.200	347.500	4.300	100.000	100.000
1959	35.800	377.800	5.800	100.000	101.000
1960	100.000	385.200	9.000	101.000	104.000
1961	286.800	382.600	7.800	101.000	111.000
1962	320.000	527.900	7.600	98.000	121.000
1963	362.400	539.800	9.500	99.000	129.000
1964	410.900	776.000	12.200	103.000	136.000
1965	442.100	783.600	12.200	118.000	146.000
1966	345.400	826.800	11.200	128.000	158.000
1967	368.200	989.700	28.300	-0.0	-0.0

Table A-4.

THE WEISAL/T DATA-FILE

Variable	1	2	3	4	5	6	7	8	9	10	11	12
Time	SUCPCZ	SUCNCZ	WMCPCZ	WMCNCZ	CZCPSU	CZCNSU	EGCPSU	EGCNSU	POCPSU	POCNSU	HUCPSU	HUCNSU
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	1	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	1	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	1	0
8	0	0	0	0	0	0	0	0	1	0	0	0
9	0	0	0	0	1	0	0	0	1	0	0	0
10	1	0	5	0	1	0	0	0	0	0	0	0
11	3	0	11	8	2	0	1	0	0	0	0	0
12	3	2	1	0	1	2	0	0	1	0	0	0
13	7	6	1	3	5	3	1	0	2	0	1	0
14	4	3	2	0	4	1	0	0	0	0	1	0
15	9	19	2	8	4	5	2	0	2	0	0	1
16	10	20	11	10	10	8	0	0	0	1	0	0
17	16	12	2	8	12	1	0	0	0	0	1	0
18	6	2	2	2	10	3	1	0	0	0	0	0
19	1	4	0	1	3	3	0	0	1	0	0	0
20	5	1	1	0	3	1	0	0	0	0	0	0
21	1	1	0	0	1	0	0	0	0	0	0	0
22	4	1	0	1	4	2	2	0	0	0	1	0
23	1	2	0	0	1	1	0	0	0	0	0	0
24	5	3	3	0	3	0	1	0	0	0	0	0
25	1	0	1	0	1	0	0	0	0	0	0	0
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27	0	0	0	0	0	0	0	0	0	0	0	0
28	5	1	0	0	2	3	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	7	0	0	0	6	0	0	0	1	0	0	0
31	1	0	1	1	1	0	1	0	0	0	0	0

Variable	13	14	15	16	17	18	19	20	21	22	23	24
Time	ALCPSU	ALCNSU	BUCPSU	BUCNSU	RUCPSU	RUCNSU	WMCPSU	WMCNSU	SUCPWP	SUCNWP	EGCPWP	EGCNWP
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2	0	2	0	0	0	0	0	2	0	0	0	0
3	0	0	0	0	2	1	3	1	1	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	1	0	0	0	0	0	2	0	1	0	1
7	0	0	0	0	1	0	2	0	2	1	0	0
8	0	0	0	0	1	0	2	0	3	0	0	0
9	0	0	1	0	0	0	2	0	1	0	0	0
10	0	0	1	0	0	1	1	1	1	0	0	0
11	0	0	0	0	1	0	2	0	2	0	2	1
12	0	0	0	0	0	0	1	0	0	1	0	0
13	0	0	1	0	0	0	5	0	5	1	1	0
14	0	0	0	0	0	0	1	0	1	0	0	0
15	0	1	0	0	0	0	4	2	5	0	2	0
16	0	1	0	0	4	3	4	5	2	3	0	0
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18	0	0	0	0	0	0	1	0	0	0	1	0
19	0	0	0	0	0	1	1	1	1	0	0	0
20	0	0	1	0	0	0	1	0	1	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	1	0	0	3	4	3	5	0	2	0
23	0	0	0	0	0	1	0	1	0	0	0	0
24	0	0	0	0	1	0	2	0	2	0	2	0
25	0	1	0	0	1	0	1	1	1	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	2	0	2	0	2	0	0	0
28	0	0	0	0	1	0	1	0	0	1	0	0
29	0	1	0	0	1	0	1	1	0	1	0	0
30	0	1	0	0	0	0	1	1	1	0	0	0
31	0	1	0	0	1	0	2	1	5	0	1	0

Variable	25	26	27	28	29	30	31	32	33	34	35	36
Time	POCPWP	POCNWP	HUCPWP	HUCNWP	ALCPWP	ALCNWP	BUCPWP	BUCNWP	RUCPWP	RUCNWP	CZCPWP	CZCNWP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	2	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0	2	1	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
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12	1	0	0	0	0	0	0	0	0	[illegible]	2	2
13	2	0	1	0	0	0	1	0	0	[illegible]	7	4
14	0	0	2	0	0	0	0	0	0	0	7	1
15	2	0	0	1	0	1	0	0	0	0	4	6
16	0	3	0	1	0	1	0	0	6	4	15	10
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25	0	0	0	0	0	1	0	0	1	0	2	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	2	0	0	0
28	0	0	0	0	0	0	0	0	1	0	2	3
29	0	0	0	0	0	1	0	0	1	0	0	0
30	1	0	0	0	0	1	0	0	0	0	6	0
31	0	0	0	0	0	1	0	0	1	0	2	0

Variable	37	38	39	40	41	42	43	44	45	46
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4	0	0	4	4	4	4	1	0	8	7
5	0	0	5	5	5	5	0	0	14	10
6	0	3	4	2	4	0	0	0	7	4
7	3	2	5	1	3	1	0	0	9	2
8	5	0	1	0	1	0	0	0	3	3
9	3	0	4	2	4	0	0	0	13	3
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15	9	2	14	6	13	5	0	0	21	10
16	8	11	4	13	3	8	1	0	11	26
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23	0	1	12	5	12	4	0	0	22	15
24	7	0	10	10	10	9	0	0	14	11
25	2	1	6	5	5	4	1	0	8	12
26	0	0	3	0	1	0	0	0	6	0
27	4	0	5	0	5	0	0	0	12	2
28	1	1	5	1	2	1	0	2	8	4
29	2	1	3	1	3	1	0	0	10	3
30	2	1	8	4	8	4	0	0	22	10
31	2	1	6	2	6	1	0	0	13	5

Variable	47	48	49	50
Time	WRCPNT	WRCNNT	NTCPNT	NTCNNT
1	7	14	24	5
2	13	19	20	3
3	6	7	14	15
4	9	10	15	6
5	4	7	17	3
6	5	5	7	13
7	7	9	20	15
8	3	6	14	12
9	13	10	15	5
10	5	17	23	14
11	8	13	13	5
12	8	10	15	7
13	12	17	30	4
14	8	14	19	4
15	17	17	14	8
16	14	17	3	1
17	8	24	24	12
18	8	10	33	6
19	6	3	16	5
20	8	15	15	8
21	22	13	18	5
22	19	20	58	14
23	21	12	54	6
24	15	8	33	6
25	9	8	13	4
26	5	4	14	1
27	16	2	11	2
28	4	8	15	2
29	18	7	9	2
30	24	8	15	5
31	19	15	14	3

QUANTITATIVE METHODS IN INTERNATIONAL RELATIONS

PART II

STUDENT MANUALS FOR SIMULATION

DESCRIPTION AND USE OF THE SIMULATION MANUALS

This manual describes the operation and play of the PRINCE (Programmed International Computer Environment) model. It is divided into the two sections:

Section I — A General Description for the Player

Section II — An Analytical Description for the Player

Section I contains a description of the model, instructions for playing, and worksheets on which decisions may be entered during play. This part is to be given to the students before the model is described in Class Session 16.

The use of Section II may be decided by the instructor. It presents some of the theoretical ideas upon which PRINCE is based and gives the equations used by the model. It does provide more detailed information for the student who is interested in obtaining deeper understanding of international processes and their simulation. On the other hand, presentation of the equations to the students poses the danger that some of them will play "to beat the computer program," missing the broader educational objectives. One solution is to give this part to the student after the play and before the critique section.

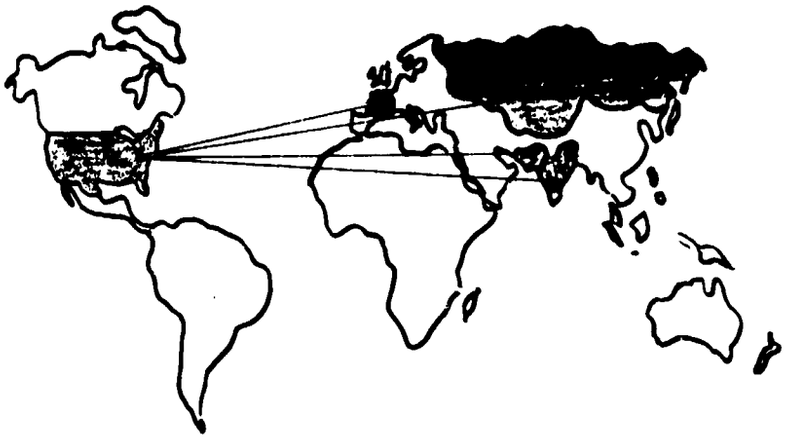
PRINCE

PROGRAMMED INTERNATIONAL

COMPUTER ENVIRONMENT

SECTION I

A GENERAL DESCRIPTION FOR THE PLAYER



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ACKNOWLEDGMENTS

The PRINCE model was designed by Professors William Coplin and Michael O'Leary of Syracuse University. The model was programmed for batch-processing operations by Stephen Mills, Syracuse University. Conversion of the batch program to conversational operation was carried out by Janice Fain, C. A. C. I.

This manual was prepared by Janice Fain and Bonnie Ayres, C. A. C.I., and William Coplin, Michael O'Leary and Stephen Mills, Syracuse University.

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GENERAL DESCRIPTION

PRINCE is a one-sided, man-computer game in which the player assumes the responsibility of making United States foreign policy decisions. His role may be thought of as a combination of the duties of the President, the Secretary of State, and other governmental officials who deal with any phase of foreign policy. The model provides a hypothetical international environment for the player in which the actions of four other nations (USSR, FRANCE, INDIA, and PAKISTAN) are simulated by the computer program.

Like any abstraction of real world operations, PRINCE is limited to a fixed level of detail and time frame. It is a highly aggregated model of international processes with attention focused on nations and on gross economic flows. It is not concerned with specific international events, but rather with the monthly ebb and flow of general political relations among the selected states. In level of detail PRINCE lies somewhere between those political-military exercises that focus on a few policy issues over short-term crises and those models that attempt projections of general socio-economic trends over a decade or so.

Broader in scope than many models of international processes, PRINCE presents the player with a relatively large number of policy issues on which decisions may be made. It represents both the domestic and international aspects of the foreign policy environment, and is designed to force the player to be sensitive to both in attempting to improve the economic and political position of the United States.

THE PRINCE NATIONS

(and their "CODES")

II-6

"ITED STATES (1) SOVIET UNION (USSR)(2) FRANCE (3) INDIA(4) PAKISTAN (5)

PRINCE was developed primarily as an educational device. As such, it creates a simulated foreign policy environment in which the student-player can explore the risks, costs, and benefits of various foreign policy strategies. Observing and reflecting upon his decisions and their consequences in the hypothetical PRINCE environment will aid the student in developing and refining his own image of contemporary international politics.

BASIC CONCEPTS IN PRINCE

International Transactions

The term "international transactions" refers to the flow of communications, people, goods and services across national boundaries. It is a concept employed by political scientists to refer to the totality of exchange that takes place among states and includes the transfer of capital and governmental officials as well as the flow of tourists, businessmen, mail, and military equipment. The "natural", or unrestricted, transaction flows among the PRINCE states may be altered if any one state:

- sets restrictions on the flow into the country, or
- grants foreign aid.

While the PRINCE program determines the restriction levels and the foreign aid grants of the Soviet Union, France, India and Pakistan, the player makes those decisions for the United States. During any cycle he can, within limits, set new restrictions and make new aid allocations. If he chooses not to make these changes, existing policies remain in effect. The player's decisions in this area have three effects:

- The pattern of "natural" transactions flows among the five states is modified.
- Expressions of approval or disapproval for these actions are generated among the U.S. domestic influence groups.
- Political actions by the other four nations follow indirectly as responses to these actions.

Figure 1 suggests the relationships among player decisions, actions generated by the program, and information given to the player.

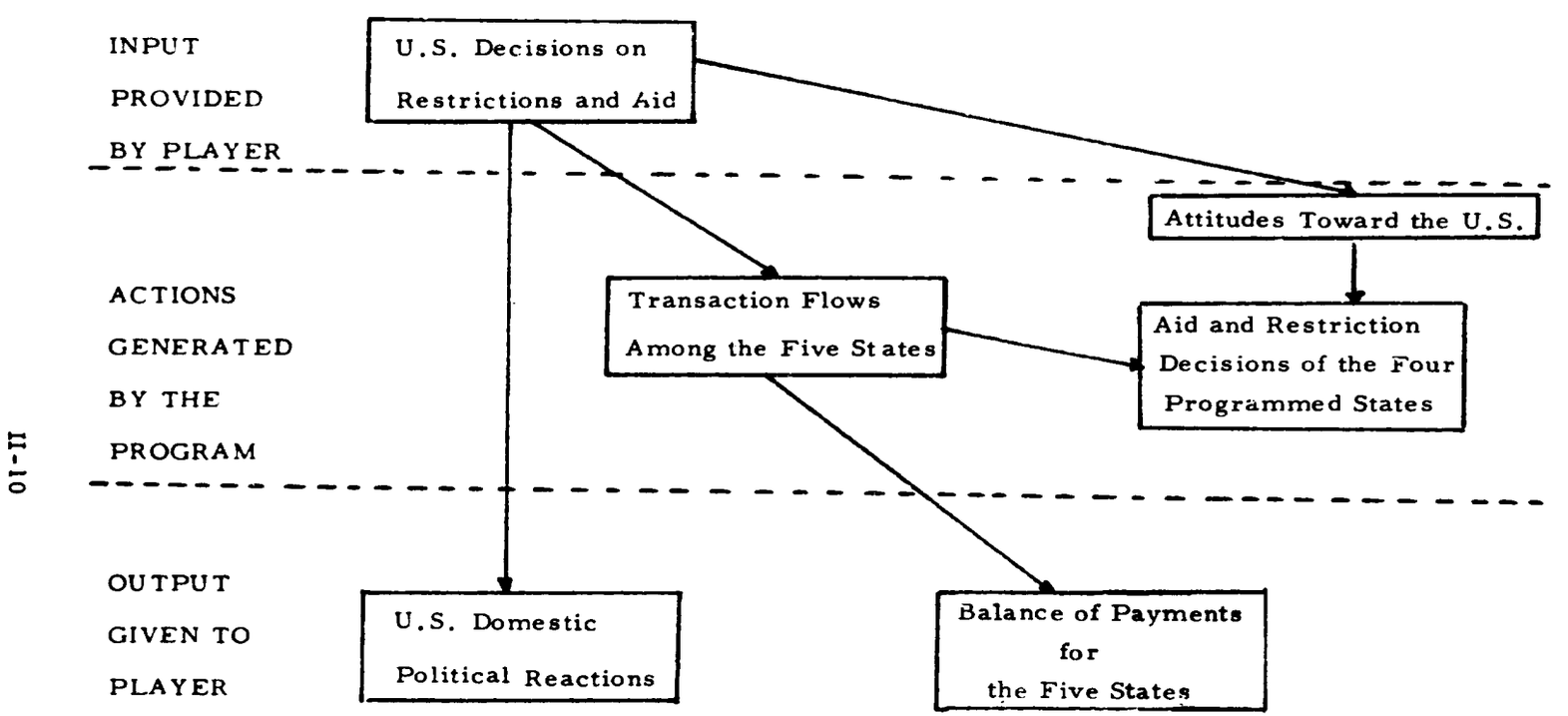


FIG. 1 : IMPACT OF RESTRICTION AND AID DECISIONS

International Interactions

The term "international interactions" refers to the diplomatic actions between states which, in PRINCE, are related to specific policy issues. By "policy issue" we mean a specific political, economic, or social question to which the foreign policy maker of each state directs his attention.

For this exercise, sixteen policy issues that are expected to be of particular interest to the five PRINCE states are selected. These issues are stated in Table 1 in the form of definite consequences or goals.

The government of each state will have an opinion on each policy issue depending on its willingness to see the goal reached. Support of the issue is expressed on a scale of -10 (representing the strongest degree of disapproval) to +10 (representing the strongest measure of support). Implications of the values on this scale in terms of action are defined in Table 2.

Having selected an issue position, each state will carry out political actions designed to exert pressure on the other nations. A "Punishment-Reward" or "PR" index represents the range of positive and negative actions that states direct at each other in this effort to resolve the policy issues to their own benefit. These actions can be viewed as mixtures of verbal statements and non-verbal actions designed to produce support through hostile or threatening actions ("Punishment") or through friendly, persuasive action ("Rewards").

TABLE 1

THE SIXTEEN INTERNATIONAL POLICY ISSUES

1. Formal recognition of the German Democratic Republic by the NATO states, followed by the demilitarization of both East and West Germany.

2. A U.N.-sponsored plebiscite in Kashmir to decide its future.

3. Withdrawal of U.S. troops from Vietnam.

4. Continued Indian control of the border territory which China also claims.

5. Continued Russian control of the border territory which China also claims.

6. Withdrawal of Israeli troops from Arab territories occupied since the 1967 war.

7. Admission of Communist China to the United Nations as the legitimate Government of China.

8. A U.N. resolution condemning the treatment of blacks in the United States.

9. A U.N. resolution condemning the treatment of Jews in the Soviet Union.

10. General disarmament, including on-site inspection.

11. Economic boycott of South Africa.

12. Establishment of an international organization to control population growth.

13. Establishment of a commission, under the World Maritime Organization, to identify and fine states who pollute international waters.

14. A resolution committing the developed States to grant at least 1% of their annual GNP to a U.N. Aid Fund for the less developed countries.

15. A Nuclear Non-Proliferation Pact which includes provisions for the inspection of non-nuclear states.

16. An international treaty on the extradition of airplane hijackers.

TABLE 2

DESCRIPTION OF THE ISSUE POSITION INDEX

Value	Meaning
-10	Willing to lead the battle against the proposed plan or action to resolve the issue.
- 9	
- 8	
- 7	Willing to commit nation's resources against the proposed plan or action to resolve the issue.
- 6	
- 5	
- 4	Willing to help organize the fight against the proposed plan or action to resolve the issue.
- 3	
- 2	
- 1	Willing to provide verbal and symbolic opposition to the proposed plan or action to resolve the issue.
0	Indifferent
+ 1	Willing to give verbal and symbolic support to the proposed plan or action to resolve the issue.
+ 2	
+ 3	
+ 4	Willing to help organize the fight to support the proposed plan or action to resolve the issue.
+ 5	
+ 6	
+ 7	Willing to commit nation's resources to support the proposed plan or action to resolve the issue.
+ 8	
+ 9	
+10	Willing to lead the battle to support the proposed plan or action to resolve the issue.

These actions are represented on a PR scale of -10 (for the most hostile, negative action) to +10 (for the most positive friendly acts). Some illustrative descriptions of points on this scale are given in Table 3.

The PR values of the action taken by a state represent the state's overall foreign policy "style." The negative side of the scale represents various degrees of the "stick" or "hard-line" strategy, while the positive side represents the "carrot" or "soft-line" approach.

While United States issue positions and PR actions are chosen by the player, positions and PR actions of the other nations are computed by the PRINCE program on the basis of:

- the importance of the policy issues to the states
- the positions of the states on the issues
- the power that can be exercised by the states on the issues

Thus, the United States foreign policy-maker will be dealing with a set of dynamically interacting states. As he attempts to convince the other four states to accept his positions, they will be attempting to influence him and the other programmed states to move closer to their positions. This process of influence interaction is indicated in Figure 2.

TABLE 3

DESCRIPTION OF THE PR INDEX

	Value	Meaning
Increasing "Punishment" ↑	-10	Threat of hostile action against a state.
	- 9	
	- 8	
	- 7	Denunciation of a state's position.
	- 6	
	- 5	
	- 4	Criticism of a state's position.
	- 2	
	- 1	Mild disapproval of state's position.
Increasing "Reward" ↓	+ 1	Mild expression of approval for state's position.
	+ 2	
	+ 3	
	+ 4	Stronger approval; promise of continued cooperation.
	+ 5	
	+ 6	
	+ 7	Promise of increased support.
	+ 8	
	+ 9	
	+10	Assurance of maximum support.

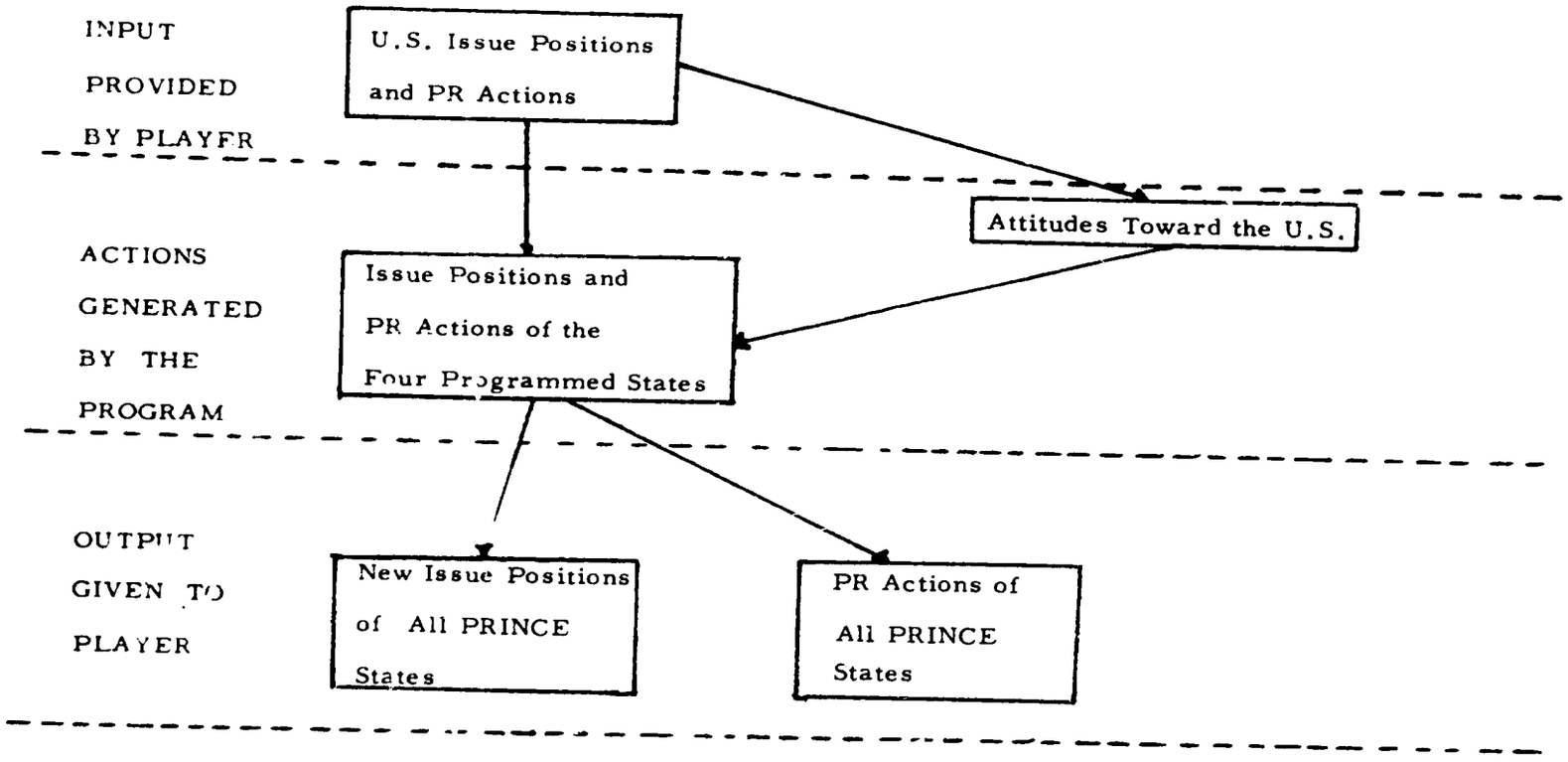


FIG. 2 : IMPACT OF ISSUE POSITION CHANGES AND PR ACTIONS

Domestic Political Reactions

An important part of the environment for a foreign policy-maker is the domestic pressure to which he must respond. PRINCE represents the U.S. domestic environment for the player through the opinions of eleven pressure groups, referred to as "Policy-Influencers," or PI's. The opinions of these groups are expressed on a scale of -10 (representing maximum disapproval) to +10 (representing the greatest measure of approval).

These eleven groups are divided into three groups:

- Partisan Influencers who represent the national political factions
- Bureaucratic Influencers made up of those executive departments most concerned with foreign policy formulation and execution
- Interest Influencers constituted of those groups outside government who attempt to influence U.S. foreign policy

These PI Groups are abstractions of the forces within the U.S. with which the foreign policy maker must deal. Three of the groups represent the majority opinions of specific executive departments. The rest of the groups do not correspond to specific individuals, groups or organizations, but rather represent aggregations of people who share the same general attitude toward American foreign policy. The eleven PI groups represented in PRINCE are listed in Table 4 under their proper category.

Each of the three PI categories carries out a specific role in PRINCE. The Partisan PI's play what political scientists call an "interest aggregation" role. They piece together the feelings of the Interest

TABLE 4. CATEGORIES OF U.S. POLICY-INFLUENCERS (PI'S)

PARTISAN INFLUENCERS	BUREAUCRATIC INFLUENCERS	INTEREST INFLUENCERS
• Extreme Liberals	• Treasury Department	• National Economic Groups
• Moderate Liberals	• State Department	• International Economic Groups
• Moderate Conservatives	• Defense Department	• "Hard-Line" Foreign Policy Groups
• Extreme Conservatives		• "Soft-Line" Foreign Policy Groups

and Bureaucratic PI's to create general political positions. Hence, their responses to policy position changes and PR actions of the player are a result of their perceptions of the positions of other PI's.

In addition to expressing their opinions of the player's actions, the Bureaucratic PI's have two unique roles:

- The State and Treasury Departments place constraints on the actions taken by the player. Should he attempt to violate these constraints, he will find his decisions modified by the program.

- The State and Treasury Departments provide the player with information about the international environment and offer suggestions on economic and political actions.

The third category is the Interest Influencers. In addition to formulating their own opinions of the player's actions, they have a share in shaping the opinions of the Partisan PI's. The attitudes of these PI's on the issues are, like those of the nations, dynamic. They start with an assigned set of ideas about international policy issues, economic acts, the "proper style" of foreign policy and the policies of the four programmed states. However, they modify some of these ideas as a result of the actions of other states and the U.S. policies followed by the player. Thus, the domestic political environment remains fluid throughout the simulation.

Figure 3 indicates the relationship within the domestic political environment.

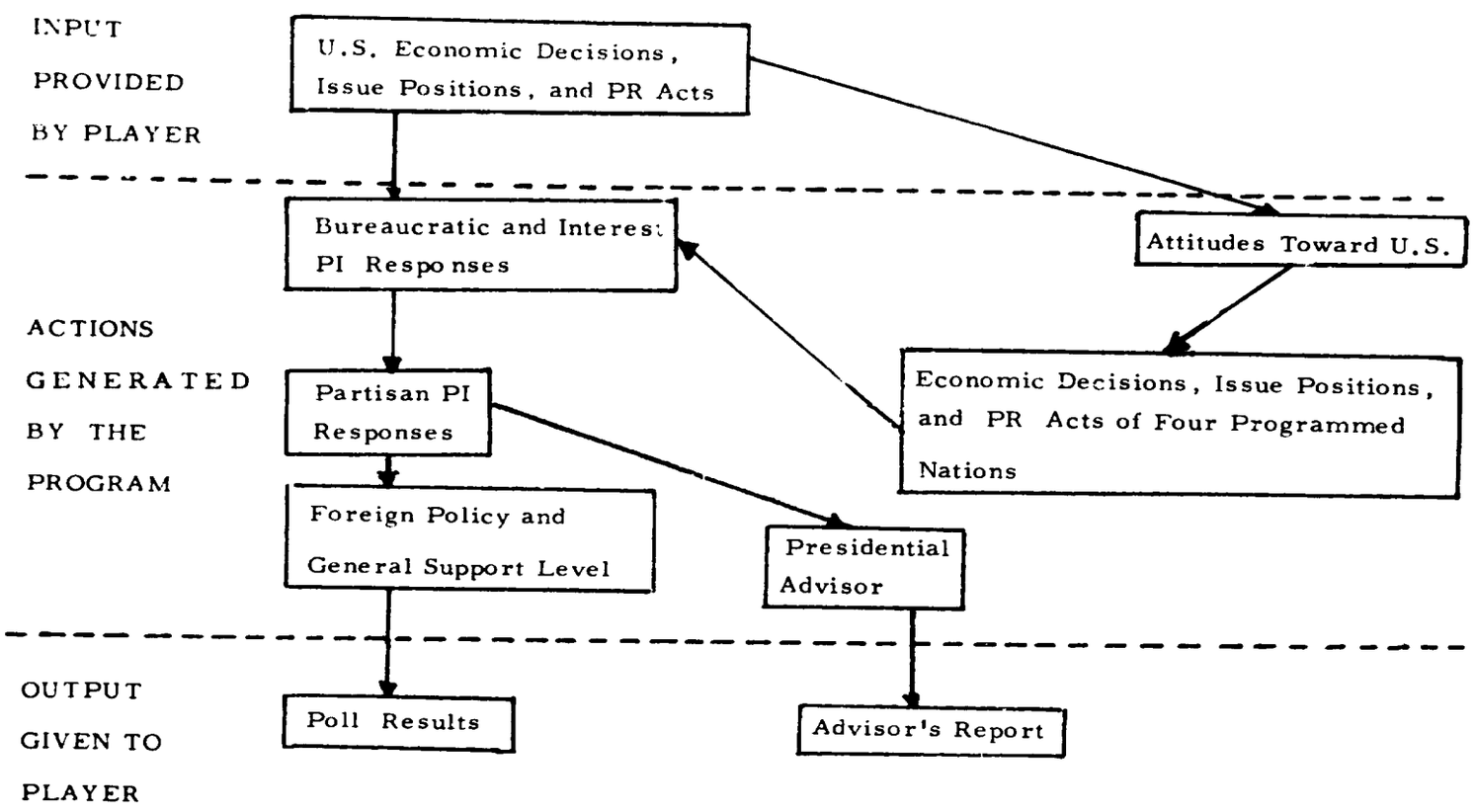


FIG. 3 : RELATIONSHIPS WITHIN THE DOMESTIC POLITICAL ENVIRONMENT

Reactions of the PI's are reported in two ways :

- The Presidential Advisor reports the PI groups' reactions to the U.S. foreign policy decisions, and
- A public opinion poll shows the general support level for administration policies.

Although public support depends on many factors outside the sphere of foreign policy, nevertheless the degree to which foreign policy satisfies the Partisan, Interest and Bureaucratic PI's will play an extremely important role. To some extent then, the poll can be viewed as a prediction of results if a presidential election were held that particular month.

Attitudes of the PI groups are described in more detail in the next section.

POSITIONS OF THE DOMESTIC POLICY INFLUENCERS

The United States domestic political environment is represented in PRINCE by eleven Policy Influencer (PI) Groups. To provide background information for the player, their general views and attitudes are described.

Partisan PI's

Included in the Partisan PI category are four groups representing the U.S. domestic political factions.

- Extreme Liberals (XLIB)

  This group has generally favored cooperative, rather than conflictual, foreign policies. They are committed to increasing United States aid to underdeveloped nations while opposing direct involvement in the internal affairs of those nations. They have, however, continued to oppose any aid to autocratic political regimes. Lately, these extreme groups have been losing popular support and have begun to try to attract the more moderates.

- Moderate Liberals (MLIB)

  The Moderate Liberals are flexible on most foreign policy issues. They oppose American involvement in Vietnam, although they have on occasion supported strong foreign policy actions. Generally, however, they oppose both foreign aid and the use of military force. On questions of ecology and worldwide social conditions, they tend to support positive action.

- Moderate Conservatives (MCON)

  The Moderate Conservatives oppose strong foreign policy action except when American security interests are involved.

- Extreme Conservatives (XCON)

  The principal concern of this group is with the threats posed by the Soviet Union and the Chinese Communists, and they favor strong action against any move either of these states might make.

Bureaucratic PI's

This category includes the three executive departments.

- Treasury Department (TREA)

  The prime objective of the Treasury Department in the international area is to reduce restrictions on transaction flows while avoiding an unfavorable balance of payments position. Other factors are not considered so important.

- State Department (SD)

  The State Department is very cautious in its interpretation of the policy actions of other states and tends to avoid both policy position changes and the use of threatening actions.

- Defense Department (DOD)

  The attitude of the Defense Department is more flexible than that of the State Department, although it favors strong actions where it judges them to be needed.

Interest PI's

Groups outside the government make up this category.

- Nationalist Economic Groups (NAEC)

  The two main interests of this group are protection of American industry and prevention of the spread of revolutionary movements.

- Internationalist Economic Groups (INEC)

  Favoring increased international interdependence and stability, these groups advocate policies that stabilize the international economy, offer economic aid to the underdeveloped nations, and are cooperative rather than coercive.

- Hard-Line Foreign Policy Groups (HARD)

  These groups fear the policies of the Soviet Union and Communist China and favor strong policy actions designed to prevent the spread of their influence.

- Soft-Line Policy Groups (SOFT)

  These groups favor disarmament, economic aid to underdeveloped nations, and the removal of trade restrictions. In general, they prefer cooperative, rather than coercive, actions.

SUMMARY

As suggested in Figures 1, 2, and 3, the PRINCE program allows the player to make decisions as the U.S. foreign policy maker. The program computes reactions and changes in the international environment that result from those decisions, and provides output information to the player.

The player's decisions, which form the input to the PRINCE program, may be of three types:

- Transaction decisions (setting restrictions and granting aid)
- Issue position changes
- Political PR actions toward the programmed states

The program computes responses of the four programmed nations to the U.S. actions and to the international environment. The U.S. responses to the environment are given to the player as suggestions that he may or may not follow.

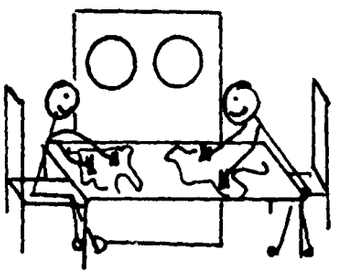
Information given to him that may be used in determining his actions during the succeeding month include:

- Actions of all the nations during the current month
- Opinions of the domestic pressure groups
- Balance of payments position for each of the nations

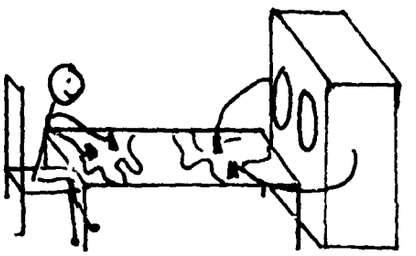
The exercise is designed to start in May 1971 and is planned to run for at least 5-6 months.

INSTRUCTIONS FOR PLAYING PRINCE

The two basic forms that games can take are suggested below:



A TWO-SIDED GAME
(COMPUTER-ASSISTED)



A MAN-COMPUTER GAME

There are TWO-SIDED* games in which two players (or two teams) represent two interest-groups. Each player makes decisions in response to the other player's moves, or to the state of the system, or in order to follow some strategy of his own. Assessments of the moves and records of the games may be provided by the players themselves, by a third neutral party acting as umpire or, if the game is very complex, by a computer.

The second form that these games may take is the MAN-COMPUTER model, or simulation, in which one player (or team) represents one interest group and the computer (acting on a set of pre-programmed decision rules) plays the other group (or groups).

*or multi-sided with several players (or teams).

PRINCE is an example of the man-computer model. The player represents the United States foreign policy-making operation. The computer represents the rest of the (simulated) world--the United States domestic influence groups and the foreign policy makers of the Soviet Union, France, India, and Pakistan. In addition to being a "player" in the game, the computer takes on the additional chore of checking the player's input data for errors, carrying out computational and bookkeeping tasks, and providing printed output.

From the viewpoint of the player, the PRINCE computer program may be divided into three sections:

- INPUT

Decisions for the current period are entered at the terminal. The input consists of numerical values separated by blanks. Negative numbers require minus signs; positive numbers should not have plus signs. Decimal points are allowed, but not required.

Errors, like typing a non-numeric character (* A ; / =) or entering a value out of bounds (i.e. a country code of 7 or a restriction of 110) will produce an error message and a rejection of the line. It may then be entered correctly.

The program will provide a description of the input if you wish.

- INPUT CHECKING

Corresponding to real-world limitations on executive decisions, PRINCE has some "built-in" restrictions on the players' actions. This section checks to see if these restrictions have been violated. Should a violation occur, the program will indicate by how much the decision has been modified.

- OUTPUT

The OUTPUT section follows the INPUT CHECKING section immediately. Printing of the output will take from 10-15 minutes. No further intervention by the player is required during this period.

A list of operations for a decision cycle of one month (simulated time) and the estimated real-time required for each is shown below:

Operation	Carried Out By	Estimated Time
Initiating Execution of the PRINCE Program	Player (at terminal)	5 seconds
Entering decisions	Player (at terminal)	10-15 minutes
Checking decisions	Program	2-5 seconds
Computations for one month's operations	Program	1-2 seconds
Printing Output	Program (at terminal)	10-15 minutes

Initiating Program Execution*

The following steps will allow the player to gain acess to the computer and to execute the PRINCE program:

1. The terminal should be placed in the Half-Duplex mode.
2. Dial the computer. The number will be given by the instructor.
3. To get an initial response from the system, hit the carriage RETURN key.
4. The system will respond with a two-line message ending with a request for a contract number. Your contract number is :

   /ID XXXXMP10

   where XXXX will be given by the instructor.
5. When the system has recognized the contract number, it will provide instructions on what to do should the system fail and then re-start. It will indicate that it is ready to respond to the first command by typing :

   GO
   >

   The player's response to this is :

   /XEQ XXXPR1

   where XXX will be given by the instructor.

*These instructions refer to the use of PRINCE on the International Telephone and Telegraph (ITT) Reactive Terminal System (RTS). This system uses an IBM 360/65 located in Paramus, New Jersey. If another computing system is used, then instructions may be modified appropriately. Specific information such as the telephone number, the contract identification, and the name under which the program is stored will be given by the instructor during the workshop.

An example of the system messages and the proper responses are shown below:

```
M.0076 HELLO...RTS IS ON THE AIR.       DATE: 03/03/71
M.0078 THE TIME IS 0348  HOURS. ENTER '/ID CONTRACT'.
>/ID XXXXXMP10
M.0155  IN CASE OF RESTART, ENTER '/RESTART CONTRACT,077.'
GO
 >/XFQ XXXP

  YOU ARE NOW PLAYING PRINCE.
```

This message indicates that execution of PRINCE has started.

PRINCE WORKBOOK

Background Scenario

It is May 1, 1971.* As a member of the United States foreign policy-making establishment, you have three principal concerns:

- Economic policy (trade restrictions and foreign aid grants)
- Foreign policy (including PR actions toward other nations as well as the US positions on major issues)
- Domestic reactions to the US policies

Consider that the hypothetical world about which you are concerned has been reduced to the five nations:** the United States (1), the Soviet Union (2), France (3), India (4), and Pakistan (5). The issues that demand your attention have been reduced to the 16 listed in Table 1, page 10.

To assist in your decision-making, information on what has been happening in this five-nation world since January is presented in Tables 5 - 11. Tables 5 and 6 show the flow restrictions and foreign aid grants. Tables 7 and 8 show the issue positions taken by the nations.

During this four-month period (January-April), the nations have been engaged in the usual diplomatic exchanges of threats, demands, comments, requests, visits, agreements, compliments, pleasantries— the entire range of international interactions. The net results of these actions are shown in Table 9 in which the opinions, or attitudes, of each country toward each other are shown for January and for April. These opinions are expressed on a scale of -10, representing extreme hostility, to +10 representing the maximum degree of friendship.

---

*The starting date should be set by the instructor at one month later than real time. This manual was used for play in April, 1971).

**In entering decisions at the terminal, the player always refers to the countries by the "country code," i.e., the integers given here following the country name.

TABLE 5.

ECONOMIC RESTRICTIONS (PERCENT OF THE "NATURAL" FLOWS PROHIBITED)

Placed by:	On flow from:	January	February	March	April
US	USSR	75	70	65	60
	France	40	35	30	30
	India	20	15	15	15
	Pakistan	20	20	15	15
USSR	US	60	55	55	59
	France	30	25	25	29
	India	40	35	35	35
	Pakistan	65	60	60	64
France	US	48	48	48	48
	USSR	50	50	50	50
	India	40	40	40	40
	Pakistan	65	65	65	65
India	US	30	34	38	42
	USSR	50	50	50	50
	France	30	34	38	42
	Pakistan	65	69	73	76
Pakistan	US	20	24	28	32
	USSR	50	54	58	62
	France	30	34	38	42
	India	40	44	48	52

TABLE 6

ECONOMIC AID GRANTS (MILLIONS OF US DOLLARS)

Given by:	To:	Jan.	Feb.	Mar.	Apr.
U S	India	880	880	880	880
	Pakistan	390	395	400	405
USSR	India	10	15	15	10
	Pakistan	5	5	5	0
France	India	10	10	10	10
	Pakistan	5	5	5	5
India	Pakistan	5	0	0	0
Pakistan	No Aid Given				

TABLE 7.

SUMMARY OF ISSUE POSITIONS: US, USSR, AND FRANCE

Issue*	US				USSR				FRANCE			
	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr
1. Recognition of East Germany	-6	-8	-10	-10	8	10	10	10	-5	-5	-5	-5
2. Plebiscite in Kashmir	3	2	3	2	-2	-2	-4	-3	-2	-2	0	0
3. Withdrawal from Vietnam	-8	-8	-10	-10	8	9	8	7	6	4	2	0
4. India vs China Border Dispute	3	5	5	4	-1	-1	0	2	-4	-6	-7	-5
5. USSR vs China Border Dispute	0	0	0	0	10	10	10	10	-2	-4	-4	-2
6. Israeli Withdrawal	1	1	1	1	7	9	10	10	2	4	6	7
7. ChiCom to the U.N.	-6	-5	-6	-7	4	5	6	5	2	0	-1	-1
8. Blacks in US	-8	-10	-10	-10	3	2	1	0	-6	-4	-4	-5
9. Jews in USSR	6	8	6	4	-7	-6	-5	-6	-2	-2	-1	-1
10. Disarmament	-2	0	-1	-2	-6	-7	-7	-9	-2	-2	-3	-3
11. Boycott of South Africa	-2	-4	-5	-6	1	2	1	1	-3	-5	-7	-8
12. Population Growth	8	8	8	7	6	5	5	6	1	3	4	5
13. Pollution of International Waters	2	0	-2	-4	2	0	0	2	-3	-5	-7	-9
14. Aid for Less Developed Nations	-3	-1	1	2	-4	-3	-3	-2	-2	0	2	2
15. Nuclear Pact	6	5	4	3	6	6	8	10	5	4	4	6
16. Airplane Hijackers	4	6	6	5	6	8	10	10	3	3	3	4

*See Statements of Issues, Table 1., page 10.

TABLE 8.

SUMMARY OF ISSUE POSITIONS: INDIA AND PAKISTAN

Issue*	INDIA				PAKISTAN			
	Jan	Feb	Mar	Apr	Jan	Feb	Mar	Apr
1. Recognition of East Germany	3	3	3	3	-1	0	0	0
2. Plebiscite in Kashmir	-8	-10	-10	-10	8	10	10	10
3. Withdrawal from Vietnam	7	5	5	4	-2	-1	-2	-3
4. India vs China Border Dispute	10	10	10	10	-3	-5	-7	-9
5. USSR vs China Border Dispute	1	3	4	4	-1	-3	-5	-5
6. Israeli Withdrawal	4	6	4	6	4	6	4	6
7. ChiCom to the U.N.	7	9	10	10	4	2	0	0
8. Blacks in US	7	7	6	6	-1	-1	-2	-2
9. Jews in USSR	3	1	0	1	6	8	10	10
10. Disarmament	7	5	3	1	7	5	3	2
11. Boycott of South Africa	6	8	9	9	5	4	4	3
12. Population Growth	-2	0	2	4	-4	-6	-7	-6
13. Pollution of International Waters	2	0	0	-1	3	5	7	8
14. Aid for Less Developed Nations	10	10	10	10	10	10	10	10
15. Nuclear Pact	-1	1	3	5	-2	-4	-6	-8
16. Airplane Hijackers	2	0	1	1	2	0	-2	-4

*See Statements of Issues, Table 1., page 10.

TABLE 9.

ATTITUDES OF THE NATIONS

On January 1, 1971*

	US	USSR	France	India	Pakistan
US	-	-4	2	5	8
USSR	-6	-	4	7	-3
France	-1	2	-	3	-2
India	-1	3	2	-	-5
Pakistan	6	-4	-1	-6	-

On May 1, 1971

	US	USSR	France	India	Pakistan
US	-	-5	2	1	7
USSR	-4	-	2	4	2
France	3	4	-	2	-1
India	5	8	3	-	-8
Pakistan	8	-3	-2	-4	-

*Each entry represents the opinion of the nation in the row of the nation in the column.

Domestic reactions to US policies are indicated by the responses of the eleven Policy Influencing (PI) groups. The opinions of these groups are aggregated into responses in three general areas:

- Economic - representing responses to current restriction and aid levels set by the US
- Political - representing responses to PR acts by the US during the current cycle of play
- Issue positions - representing responses to the current US positions on the issues.

The opinions of these PI groups during the period January-April are shown in Table 10.

TABLE 10

RESPONSES OF THE POLICY INFLUENCER (PI) GROUPS*

PI Group	JAN			FEB			MAR			APR		
	ECO	POL	IP	ECO	POL	IP	ECO	POL	IP	ECO	POL	IP
1. XLIB	-4	0	-10	-1	2	-1	-2	2	-2	-4	2	-2
2. MLIB	-1	0	-7	4	0	1	3	-1	0	2	0	-1
3. MCON	1	0	2	-7	-4	1	-6	-5	0	-4	-4	1
4. XCON	3	0	1	-4	-6	3	-4	-7	2	-2	-6	2
5. TREA	7	0	-3	1	-4	-4	1	-4	-6	3	-4	-7
6. SD	-6	0	1	2	2	1	1	1	1	-1	2	2
7. DOD	5	0	3	-2	-4	1	-2	-5	1	0	-4	1
8. NAEC	-6	0	-10	1	2	-10	1	1	-10	-1	2	-10
9. INEC	1	0	1	5	-2	0	5	-2	-2	4	-1	-2
10. HARD	2	0	2	1	1	1	2	0	0	2	1	-1
11. SOFT	2	0	4	3	-4	2	4	-5	2	4	-4	0

*Described on pp. 20-22.

Worksheets for U. S. Decisions

This section provides worksheets on which US decisions for each cycle may be entered. Preceding the worksheets are samples showing how the decisions are recorded and how the terminal input will appear.

TABLE 11

SAMPLE WORKSHEET:
INITIAL TERMINAL INPUT

```
M.0076 HELLO...RTS IS ON THE AIR.       DATE: 03/29/71
M.0078 THE TIME IS 1126  HOURS. ENTER '/ID CONTRACT'.
>/ID XXXX MPIO
M.0155  IN CASE OF RESTART, ENTER '/RESTART CONTRACT,077.'
GO
>/XEQ NWCPR1

YOU ARE NOW PLAYING PRINCE. PLEASE ENTER YOUR TEAM NUMBER(1,2,3, OR 4)
>1

WOULD YOU LIKE A DESCRIPTION OF THE INPUT ? 0=NO, 1=YES
>YES
THE SYMBOL Y  IS NOT RECOGNIZED. PLEASE RE-TYPE LINE. *
>YES
THE SYMBOL Y  IS NOT RECOGNIZED. PLEASE RE-TYPE LINE.
>1 **

 COUNTRY CODES ARE : 2=USSR, 3=FRANCE, 4=INDIA, 5=PAKISTAN
```

---

* The player has made an error; Yes-No answers are given as integers; 0 means "No"; 1 means "Yes".

** By entering "1", the player has asked for a description of the input. After several cycles of play, the player may wish to skip this description.

TABLE 12.

SAMPLE WORKSHEET
ECONOMIC RESTRICTIONS (PERCENT OF THE "NATURAL" FLOWS PROHIBITED)*

NATION		APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Code	Name									
2	USSR	65	60							
3	FRANCE	30→	**							
4	INDIA	20→								
5	PAKISTAN	15→								

```
ENTER ECONOMIC RESTRICTIONS
INFORMATION REQUIRED :
TARGET COUNTRY (2,5) AND % RESTRICTIONS ON NATURAL FLOW
OF GOODS AND CAPITAL (0,100)
EXAMPLE :
4   43
FLOW FROM INDIA IS RESTRICTED TO 43% OF THE NATURAL FLOW.
END THIS SECTION BY TYPING 00
>2 60
>00
```

*ACTUAL FLOW = (NATURAL FLOW) x (100 - RESTRICTION)/100

**No entry is made if value remains the same as in the preceding month.

TABLE 13.

SAMPLE WORKSHEET

ECONOMIC AID (MILLIONS OF US DOLLARS)

TO: NATION Code	Name	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
2	USSR	0	→*							
3	FRANCE	0	→							
4	INDIA	880	870							
5	PAKISTAN	400	410							

```
ENTER ECONOMIC AID
INFORMATION REQUIRED :
TARGET COUNTRY (2,5) AND AID IN MILLIONS OF US DOLLARS (0,10000.)
EXAMPLE :
5     59
INDICATES THAT AID AMOUNTING TO $59. MIL WILL BE GIVEN TO PAKISTAN.
END THIS SECTION BY TYPING 00
>4 870
>5 410
>00
```

*No entry if value remains the same as in the preceding month.

TABLE 14

SAMPLE WORKSHEET: US ISSUE POSITIONS

Issue	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1. Recognition of East Germany	-10	-8							
2. Plebiscite in Kashmir	2	0							
3. Withdrawal from Vietnam	-10	-8							
4. India vs China Border Dispute	4	→ *							
5. USSR vs China Border Dispute	0	→							
6. Israeli Withdrawal	1	→							
7. ChiCom to the U. N.	-7								
8. Blacks in US	-10	→							
9. Jews in USSR	4	→							
10. Disarmament	-2	→							
11. Boycott of South Africa	-6	→							
12. Population Growth	7	→							
13. Polution of International Waters	-4	→							
14. Aid for Less Developed Nations	2	→							
15. Nuclear Pact	3	5							
16. Airplane Hijackers	5	→							

*No entry is made if issue position remains the same as last month's position.

TABLE 14 (Continued)

SAMPLE WORKSHEET

```
ENTER POSITION CHANGES
INFORMATION REQUIRED :
ISSUE (1,16) AND NEW POSITION (-10,10)
EXAMPLE :
  6   -8
INDICATES THAT THE NEW US POSITION ON ISSUE 6 WILL BE -8.
END THIS SECTION BY TYPING 00
>1 -8
>2 0
>3 -8
>15 5
>00
```

TABLE 15.

SAMPLE WORKSHEET

"PR" ACTS

Target	Issue	PR		Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR
2	1	1																		
5	2	4																		
2	3	1																		
5	3	1																		
2	15	7																		
3	15	7																		

```
ENTER PUNISHMENT-REWARD ACTS
INFORMATION REQUIRED :
TARGET COUNTRY (2,5), ISSUE (1,16), AND THE PR ACT(-10,10)
EXAMPLE :
2   4    6
INDICATES THAT ON ISSUE 4 THE US DIRECTS A PR ACT 6. TOWARD THE USSR.
END THIS SECTION BY TYPING 00
>2 1 1
>5 2 4
>2 3 1
>5 3 1
>2 15 7
>3 15 7
>00
```

WORKSHEET :

ECONOMIC RESTRICTIONS (PERCENT OF THE "NATURAL" FLOWS PROHIBITED)*

	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
2 USSR									
FRANCE									
INDIA									
PAKISTAN									

ECONOMIC AID (MILLIONS OF US DOLLARS)

To:	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
2 USSR									
FRANCE									
1 INDIA									
PAKISTAN									

* ACTUAL FLOW = (NATURAL FLOW) x (100 - RESTRICTION)/100

WORKSHEET: US ISSUE POSITIONS

Issue	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1. Recognition of East Germany								
2. Plebiscite in Kashmir								
3. Withdrawal from Vietnam								
4. India vs China Border Dispute								
5. USSR vs China Border Dispute								
6. Israeli Withdrawal								
7. ChiCom to the U.N.								
8. Blacks in US								
9. Jews in USSR								
10. Disarmament								
11. Boycott of South Africa								
12. Population Growth								
13. Polution of International Waters								
14. Aid for Less Developed Nations								
15. Nuclear Pact								
16. Airplane Hijackers								

WORKSHEET : "PR" ACTS

Target	Issue	PR		Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR	Target	Issue	PR

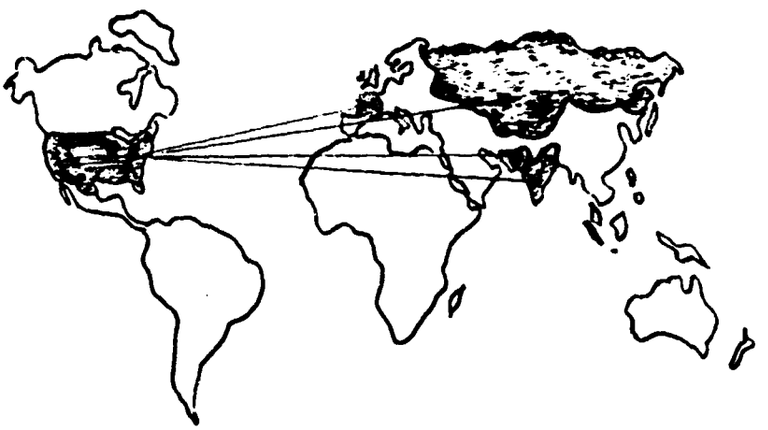
PRINCE

PROGRAMMED INTERNATIONAL

COMPUTER ENVIRONMENT

SECTION II

AN ANALYTICAL DESCRIPTION FOR THE PLAYER



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This manual was prepared by Janice Fain, C.A.C.I., and William Coplin, Michael O'Leary, and Stephen Mills, Syracuse University.

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INTRODUCTION

The background scenario and basic features of the PRINCE model are discussed in Section I, "A General Description for the Player." This volume will present a more detailed description of the analytical relationships underlying the model. For this purpose, PRINCE may be divided into three sub-models:

- the International Transaction Sub-model
- the International Political Sub-model, and
- the Domestic Political Sub-model.

As indicated in Figure 1, the PRINCE computer program operates on a Data Base according to the Player's inputs and its own internal logic to produce the output that is given to the player.

The Data Base contains all of those arrays whose values constitute the PRINCE "World." During each "run" of the program (or "cycle" of play), the PRINCE program modifies the state of the world on the basis of:

- United States actions in the international political and economic areas that are selected and entered by the player at the terminal, and
- acts by the other four states (the Soviet Union, France, India, and Pakistan) computed by PRINCE from programmed decision rules.

This volume will describe the PRINCE Data Base, the PRINCE actors, and each of the sub-models.

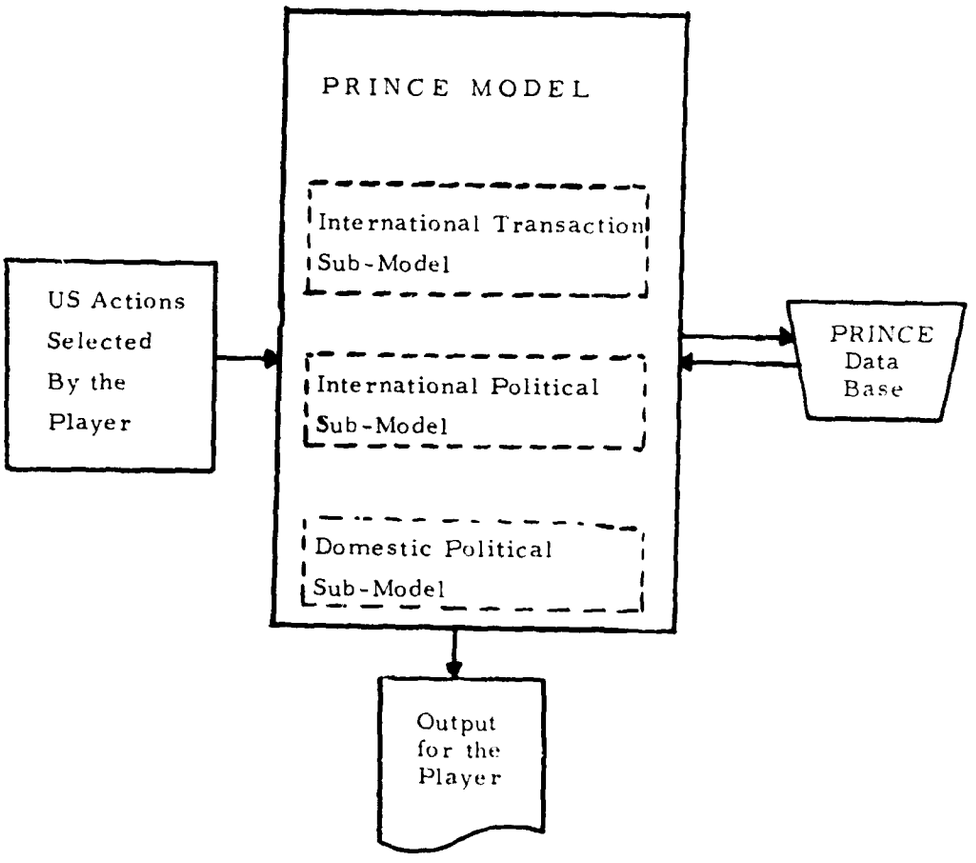

FIG. 1 : PRINCIPAL ELEMENTS IN THE PRINCE PROGRAM

THE PRINCE DATA BASE

Twenty-one arrays represent the state of the PRINCE world. These arrays contain variables of two basic types:

- Quantities that, although aggregated, can be measured; for example, foreign aid and transaction flow (expressed in millions of U. S. dollars), economic restrictions (percent of "natural" flows), and balance of payments (millions of dollars).

  Initial values for these quantities are taken from existing data sources, such as the United Nations Statistical Yearbook.

- Quantities that represent feelings, attitudes, opinions on issues, influence, etc. These quantities have no standard units of measurement and in PRINCE are always expressed on scales of 0 to 10 or -10 to +10. In general, positive values represent friendly attitudes, approval, and persuasive actions (or "rewards"). Negative values correspond, on the other hand, to hostility, unfriendly attitudes, disapproval, and threatening actions ("punishments").

  Initial values for these quantities are based on the judgment of the model designers. Research projects to develop and improve these values are in progress.

Arrays of the first type are:

AID(I, J): the amount of aid given by nation I to nation J ($ MIL)

BAL(I): the balance of payments for nation I ($ MIL). It includes the transaction flows between I and the rest of the world as well as between I and the other PRINCE nations.

FLOW(I, J): the actual flow of "transactions" from nation I to nation J ($ MIL) taking into account the restrictions placed on the flow by J.

NAID(I): the amount of aid needed by nation I ($ MIL).

RESTI(I, J): the restrictions placed by nation J on the transactions coming to J from nation I (in percent of the "natural" transaction flows).

RNATU(I, J): the "natural" transaction flow from nation I to J, i.e., the flow that could be expected in the absence of restrictions by nation J ($ MIL).

TREND(I, J): a constant representing the monthly growth of natural flows from nation I to nation J.

The following arrays are of the second type and are measured (except where noted) on a scale of -10 to +10.

AFFCT(I, J): the relative feeling of friendship or hostility felt by nation I toward nation J.

APOS(K): the general attitude of the Kth U.S. domestic policy influencing (PI) group toward foreign aid.

FLEX(K): relative willingness of PI group K to change its attitude toward foreign nations.

PCONG(K, L): the relative power of the interest and bureaucratic groups (K=5,11) to influence the partisan PI groups (L=1, 4)*

PELEC(K): the relative power of PI group K to determine the domestic support for the player's administration (on a scale of 0 to 10).

PIAFF(K, J): the attitude of PI group K toward nation J.

PIPOS(M, K): the position on issue M that PI group K would like to see the U. S. take. The support of PI group K for the administration is determined to a large extent by how far the player moves from these issue positions.

PISAL(M, K): the relative importance, or salience, of issue M to PI group K.

PISUP(K): the degree of support by PI group K for administration foreign policies.

POS(M, I): the position on issue M taken by nation I.

POW(M, I): the relative influence on issue M held by nation I.

RPOS(K): the attitude of PI group K toward trade restrictions.

SAL(M, I): the relative importance of issue M to nation I

SDPOS(M): the position on issue M preferred by the U. S. State Department. This position is given to the player as a "suggestion".

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*The 4 partisan PI groups are listed first - Values in the PCONG array for K=1,4 and L=1,4 are not currently used by the program.

NRPOS(K): the type of foreign policy action preferred by PI group K.

In addition to these arrays, PRINCE stores and computes a number of other variables during the course of play. These are not defined on the basis of needed theoretical concepts, but rather as conveniences in carrying out the computations and, as such, are of interest only to the programmer.

THE PRINCE ACTORS

Attributes of the Actors

The principal actors in the PRINCE world are the five nations and the eleven domestic influence groups. The status and opinions of these groups are defined by arrays in the PRINCE data base:

NATIONS

- Economic status of the nations: BAL, NAID
- Relationships of the nations to the policy issues: POW, POS, SAL
- Economic interactions among the nations: AID, FLOW, RESTI, RNATU, TREND
- Inter-nation attitudes: AFFCT

PI GROUPS

- Economic attitudes of the PI groups: APOS, RPOS
- Attitudes of the PI groups on the issues: PIPOS, PISAL
- Attitudes of the PI groups toward foreign nations and foreign policy: PIAFF, NRPOS, FLEX
- Domestic political opinions, power, and influence: PELEC, PCONG, PISUP

Roles of the Actors

Actions that may be carried out by the nations include:

(Economic)
- Setting restrictions on transaction flows into the country
- Granting foreign aid

(Political)
- Taking positions on policy issues
- Acting to persuade or to threaten other nations in an attempt to change their issue positions and attitudes.

Actions for the U.S. are chosen by the player; actions for the other four nations are computed by the program on the basis of built-in decision rules.

The domestic influence groups are essentially passive observers of the action. At the end of each cycle of play, the player is given their aggregated responses to U.S. actions.

Two of the domestic groups, the State and Treasury Departments, take a somewhat more active role with respect to the player. In addition to expressing their opinions of the U.S. decisions, they have three functions:

1. To place limits on the player's actions.
   - Aid grants must be within $\pm$ \$5 MIL of the last month's value.
   - Restrictions must be within $\pm$ 5% of last month's level.
   - New issue positions must be within $\pm$ 2 points of the old positions.
2. To provide information on what has been occurring in the world.
   - A summary of the nations' issue positions.
   - Lists of all economic and political acts occurring during the month.
   - Balance of payments for all the nations.

3. To make suggestions for U. S. action to be taken in the next cycle of play.

- New issue positions.
- Economic acts.
- Political "PR" acts.

INTERNATIONAL TRANSACTION MODEL

Basic Rules of Computation

This sub-model computes the actual flows among the five PRINCE nations from the natural flows and the restrictions placed by the nations. Restrictions and aid grants for the U. S. are selected by the player within the limits allowed by the U. S. State and Treasury Departments. Aid and restriction decisions are made by the program for the other four nations on the basis of the following rules:

- Nations attempt to maintain a balance of payments within ±10% of their total transaction flows plus aid. When a nation's balance of payments falls outside this range, it takes action to correct the situation.

- If the nation has an unacceptable deficit, then it will reduce its aid grants (if any) by amounts up to $5 million per aid recipient.

- If there is still a deficit after this action, then it will increase its restrictions on transaction flows by an amount up to 5% for each country.

- A nation will attempt to correct a balance of payments surplus by increasing its aid grants to needy countries by an amount up to $5 million per country.

- If there is still an unacceptable surplus, then it will lower its restrictions by as much as 5% per country.

- In addition to the limitation of 5% on each restriction change per country in each cycle of play, there are upper and lower limits on the restrictions that may be placed by a nation. These limits depend on the attitudes of the nation toward its trading partners.

For nation I, the limits on the restrictions it may place on transactions from nation J are:

$$\text{Upper limit: } 60 - 4 \times [AFFECT(I, J)]$$
$$\text{Lower limit: } 30 - 2 \times [AFFCT(I, J)]$$

The possible ranges on these limits are shown below:

	AFFCT(I, J)	Limits	
		Lower	Upper
Maximum degree of friendship for I toward J	10	10%	20%
Neutrality	0	30%	60%
Maximum hostility of I toward J	-10	50%	100%

Thus, a completely hostile nation may not receive more than 50% of the natural flow from its target of hostility. On the other hand, a completely friendly nation cannot limit the flow to less than 80% of the natural flow.

Modification of "Natural" Flows

In addition to computing the actual flows, this sub-model increases the "natural" flows among the nations by the secular trend, modified by a normally distributed random number. Thus, RNATU(I, J), the new "natural" flow from nation I to J, is computed from:

$$RNATU(I, J) = OLD + TREND(I, J) \times [1 + V]$$

where OLD is the value of the "natural" flow for the previous month

V is a normally distributed random number with a mean of 0.

This sub-model has three functions:

- To compute the punishment-reward (PR) acts that will be directed by one PRINCE state toward another,
- to determine if any PRINCE state will change its position on an issue, and
- to compute changes in the attitudes of the nations toward each other.

Both PR acts and issue position changes are computed for the United States on the basis of the same decision rules used for the other nations. However, these acts and position changes are not processed by the program, but are given to the player as "suggestions" which he may take if he wishes. Only decisions specifically entered at the terminal will be implemented by the program. Attitude changes are computed for all of the nations.

Computation of the PR Acts

Interactions among the PRINCE nations are treated in a highly aggregated manner. All of the actions directed by one nation to another on a specific issue during one month are treated in PRINCE as one "PR" action. The style, or type, of action is defined by a "PR" value assigned to it on a scale of -10 to +10.

A nation does not respond directly to PR acts of which it is a target. Such acts may, however, change its attitudes toward the initiating nation, and it is the attitudes, as well as the issue positions of both nations, which determine the range of PR actions.

Propositions underlying the generation of PR actions are:

1. A state directs general policy, or PR, acts toward other states only when an issue is sufficiently salient to it or when the influence of the target state is sufficiently great. The criterion for action by nation I toward nation J on issue M is that

$$\left[SAL(M, I) \times POW(M, J)\right] > 15$$

2. The greater the issue difference between the two states, the more hostile will be the act. Upper and lower limits on the PR acts are computed from the following equations:

$$D = \left| POS(M,I) - POS(M,J) \right|$$

where D is the absolute value of the position difference on issue M.

The upper limit is

$$PRMAX = -.045 \times D^2 + 10$$

The lower limit is

$$PRMIN = .045 \times (20-D)^2 - 10 + DEP(I,J) \times \left[PRMAX - .045\,(20-D)^2 + 10 \right] / 10.$$

where DEP(I,J) is a measure of the economic dependence of nation I on nation J. It is obtained by computing DPP from :

$$DPP = \frac{\left[FLOW(I,J) \right]^2 \left[FLOW(I,J) - 1 \right]}{\left[T^2 \right] \left[T - 1 \right]}$$

where T is the total flow from nation I to the other PRINCE nations.

Then, the DEP(I,J) is constrained to lie between 0 and 10 at values of this ratio of -5 to +5 as shown below:

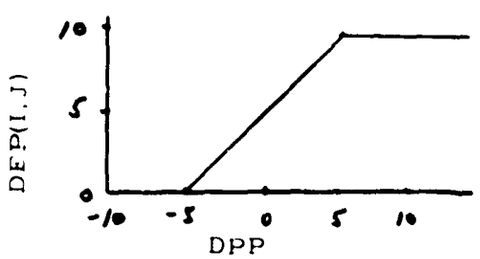

Fig 2. The Functional Dependence of DEP(I,J) on DPP

The PR of the act directed toward J by I is a randomly selected value lying somewhere between PRMAX and PRMIN. The exact value selected depends on the ratio of the importance, or salience, of the issue to I and the influence, or "power", that I has on this issue. This ratio is termed the "irresponsibility" of I on issue M.

Figures 3-14 show the scattering of PR actions as a function of the absolute value of the position differences for various values of the "dependence" and "irresponsibility". It can be seen that the higher the "irresponsibility" of I, the closer the PR value will lie to one of the extremes (either PRMAX or PRMIN). The lower the "irresponsibility", the more likely the value is to lie at the mid-range between PRMAX and PRMIN.

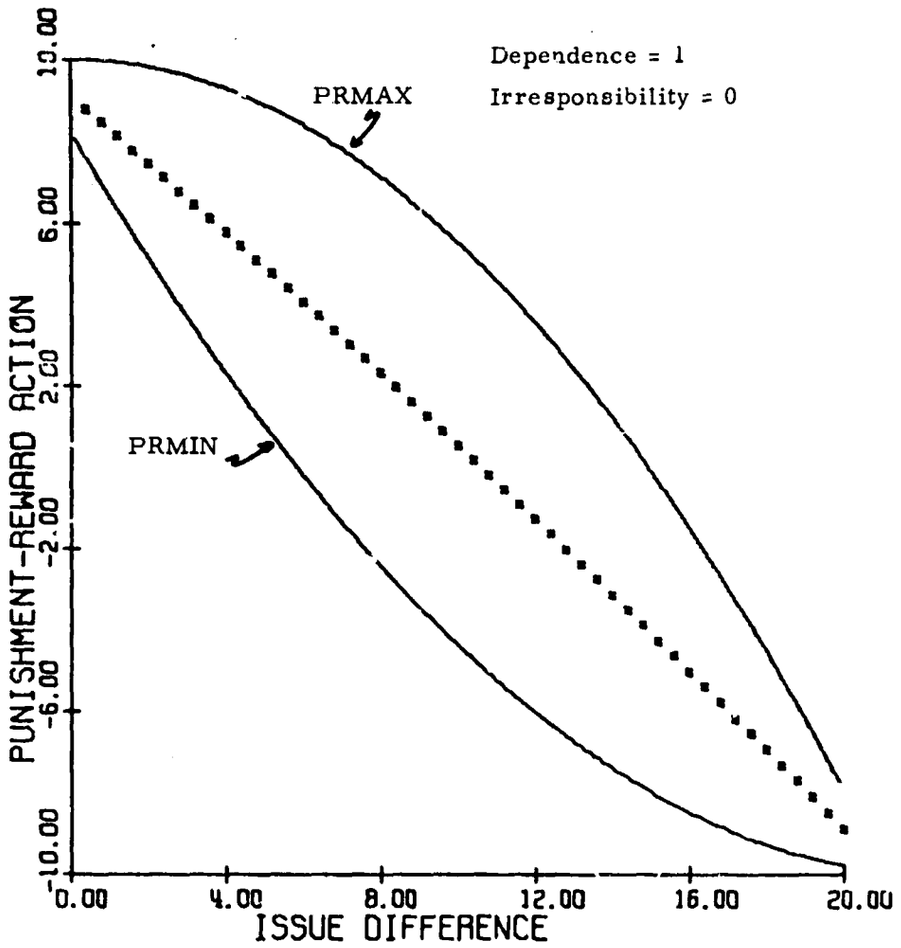

Figure 3. Distribution of PR's as a Function of Issue Difference

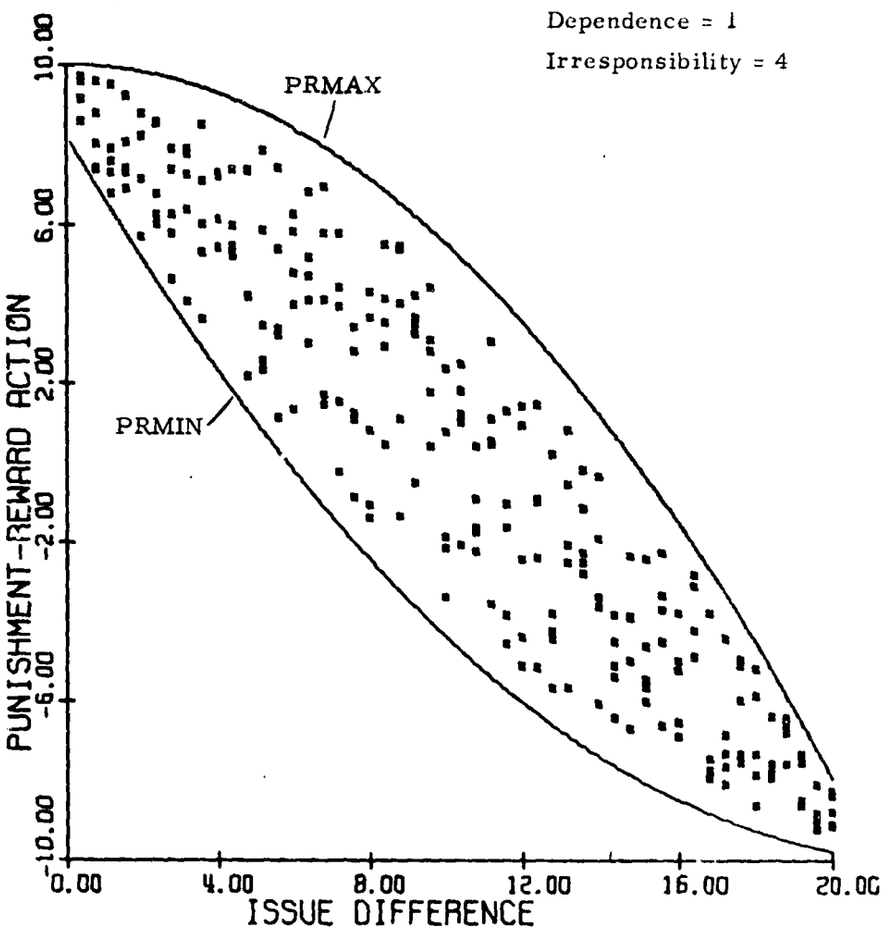

Figure 4. Distribution of PR's as a Function of Issue Difference

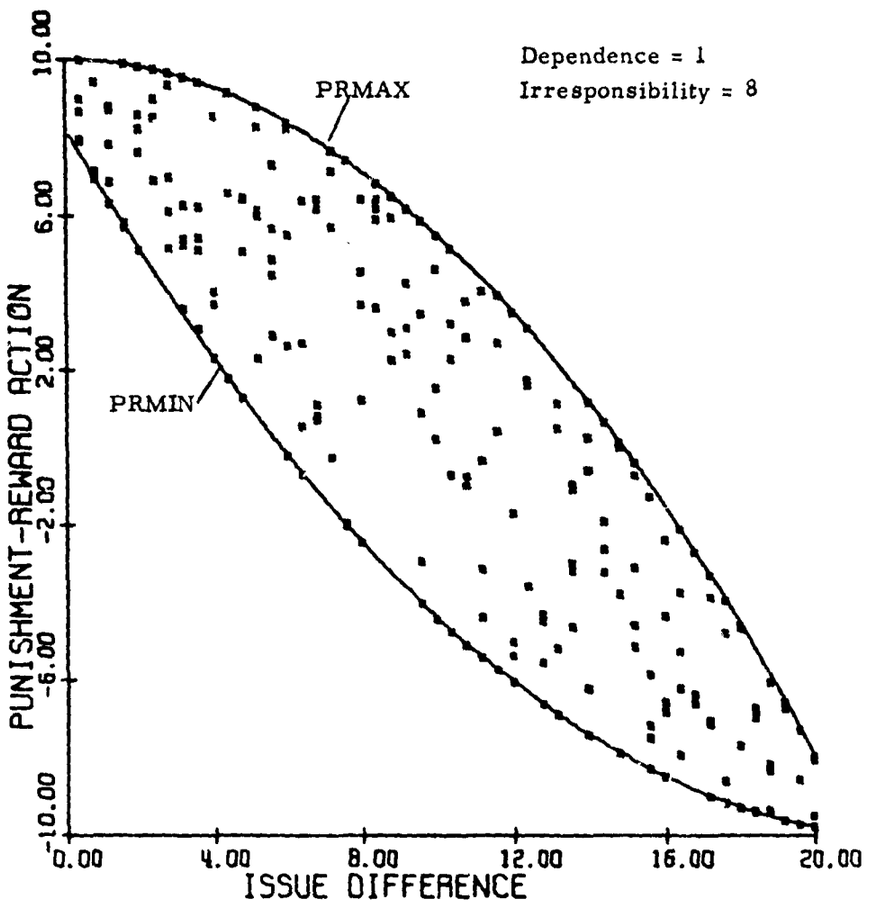

Figure 5. Distribution of PR's as a Function of Issue Difference

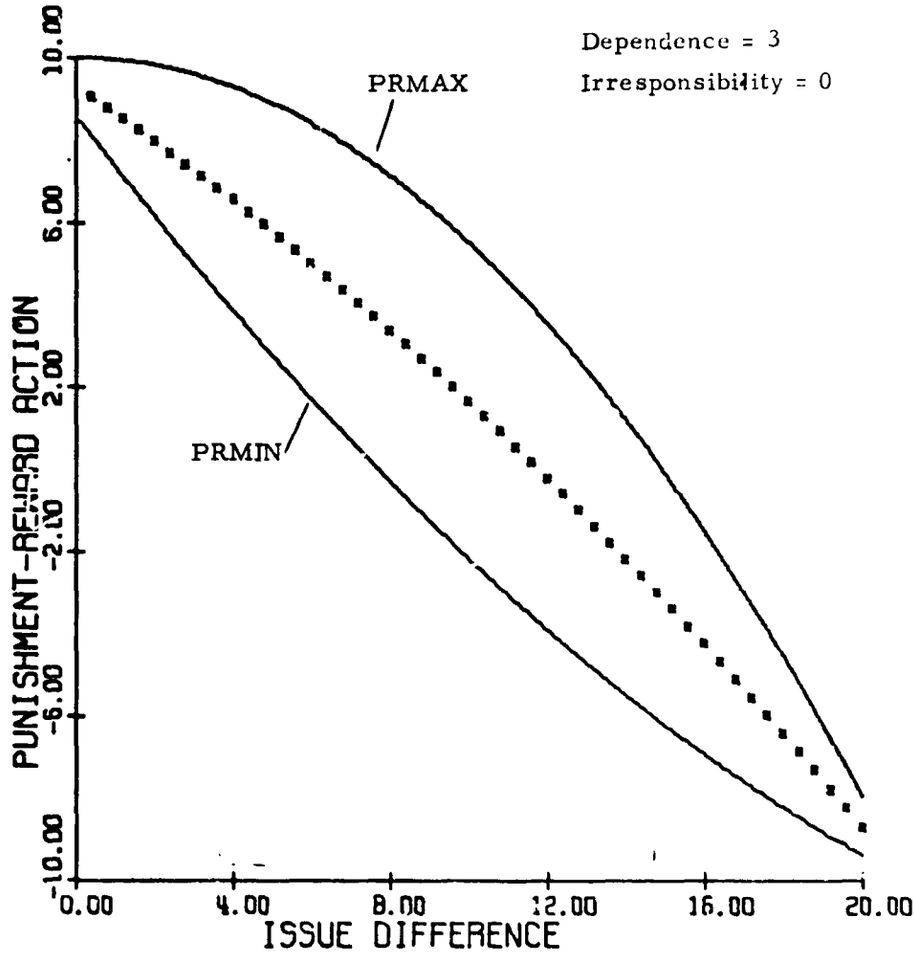

Figure 6. Distribution of PR's as a Function of Issue Difference

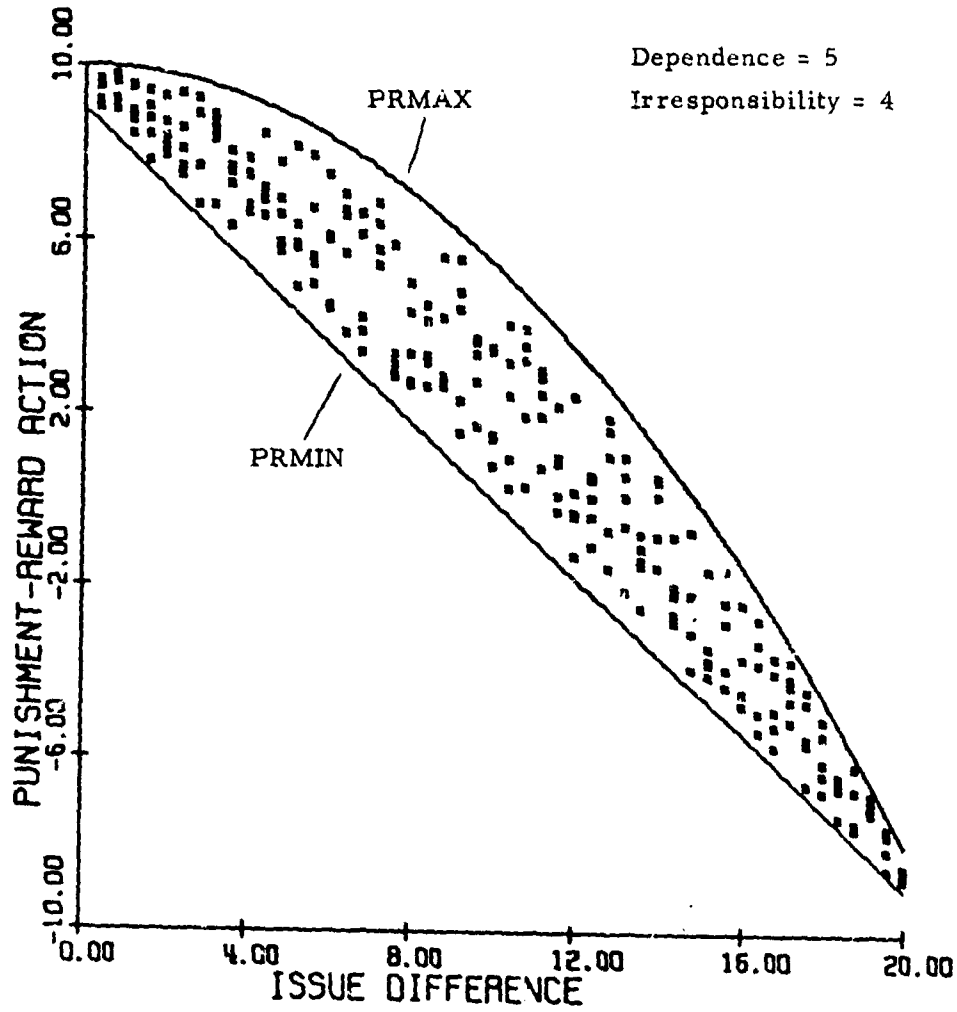

Figure 7. Distribution of PR's as a Function of Issue Difference

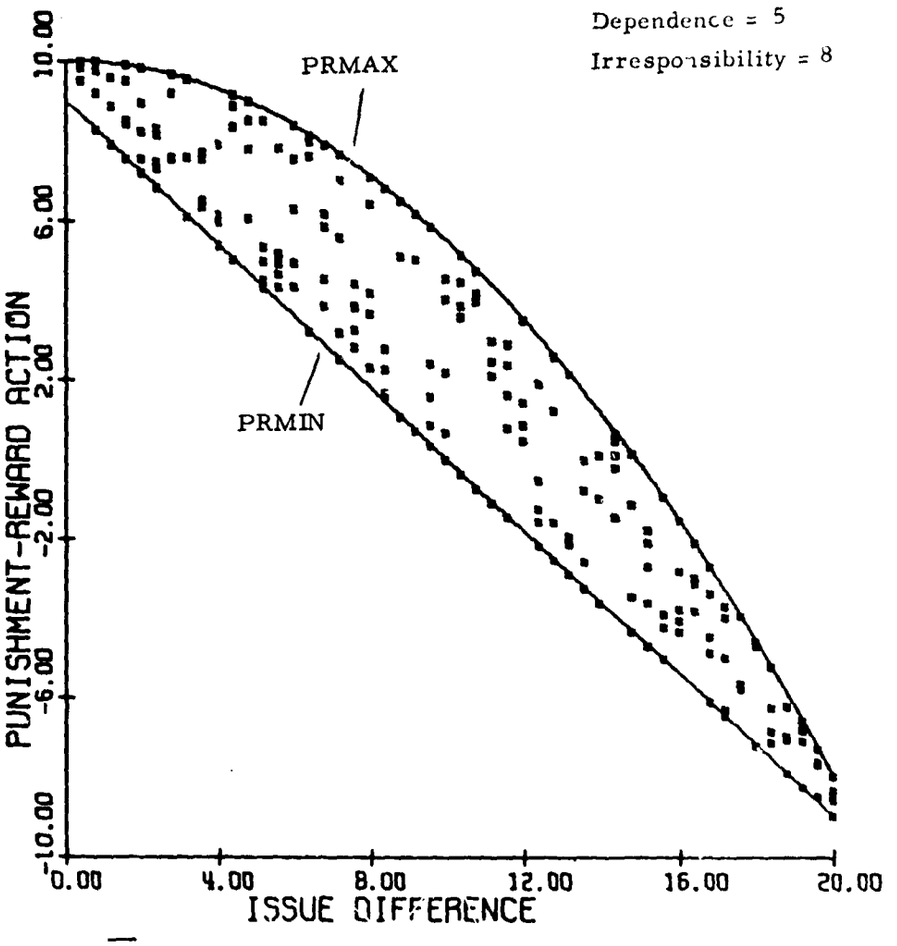

Figure 8. Distribution of PR's as a Function of Issue Difference

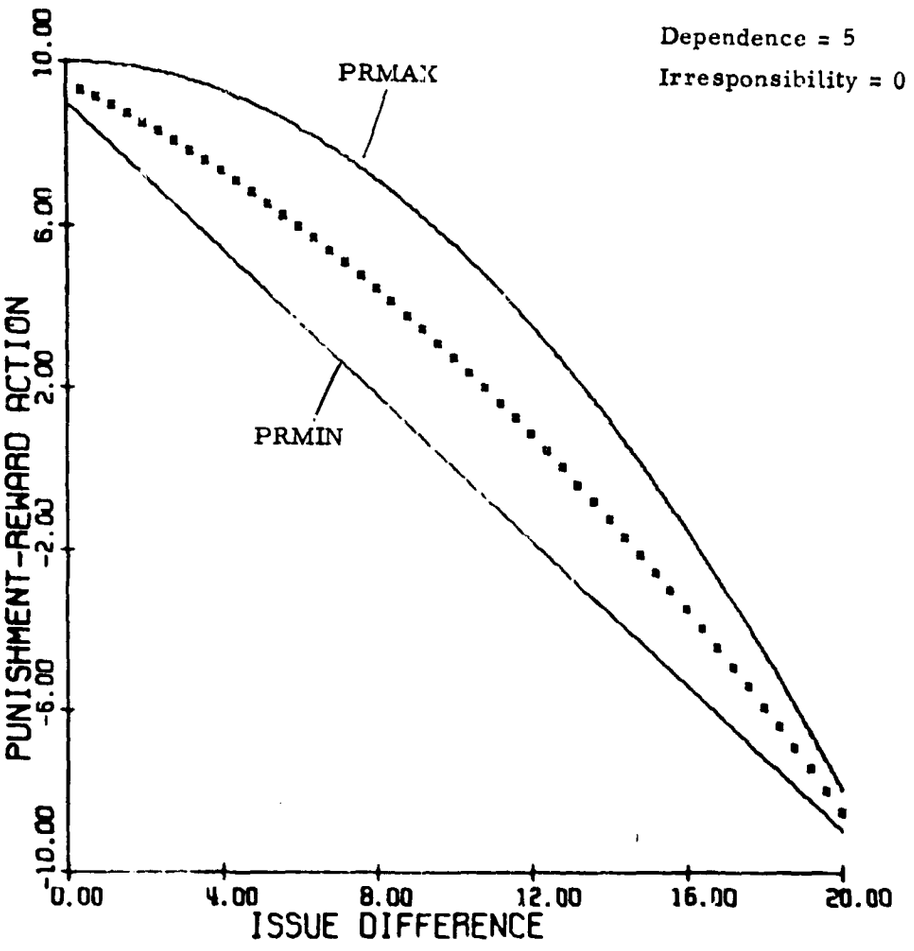

Figure 9. Distribution of PR's as a Function of Issue Difference

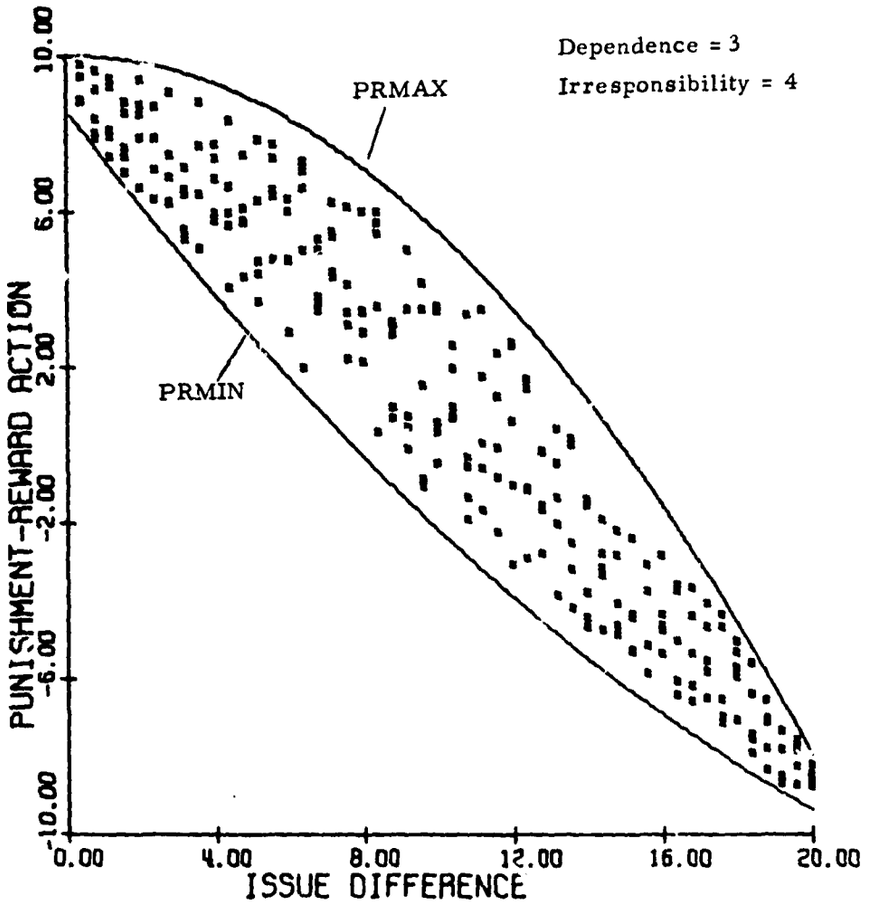

Figure 10. Distribution of PR's as a Function of Issue Difference

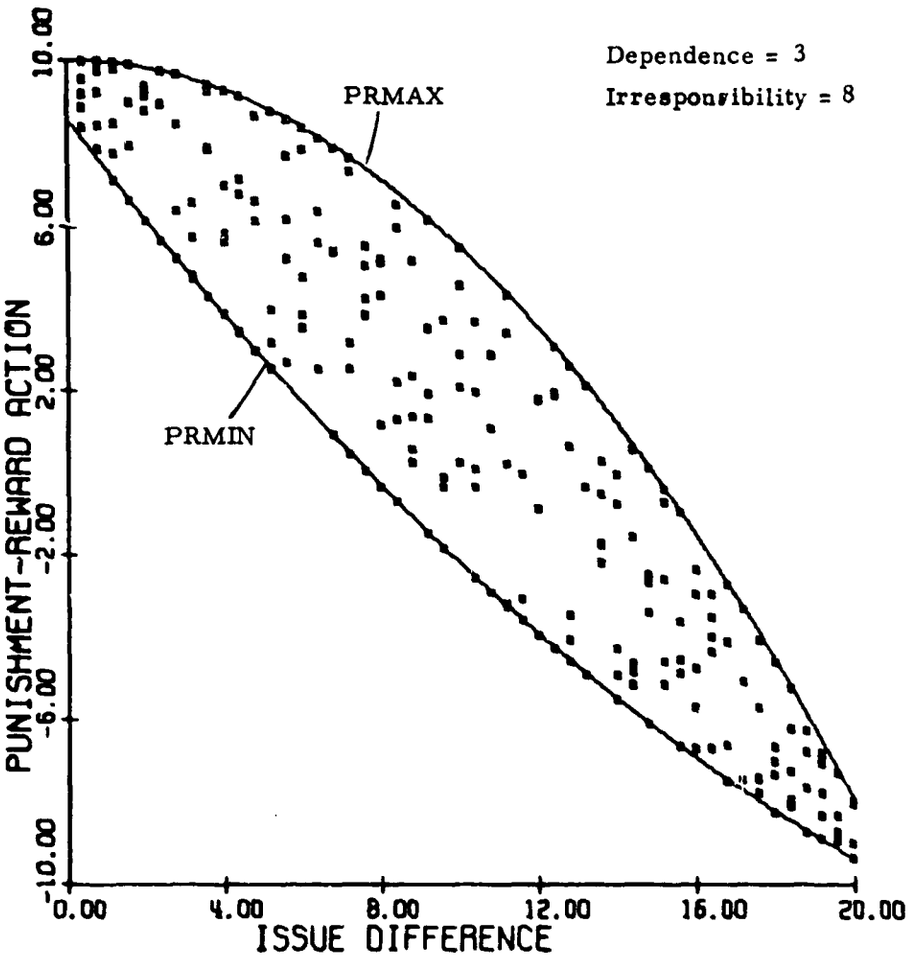

Figure 11. Distribution of PR's as a Function of Issue Difference

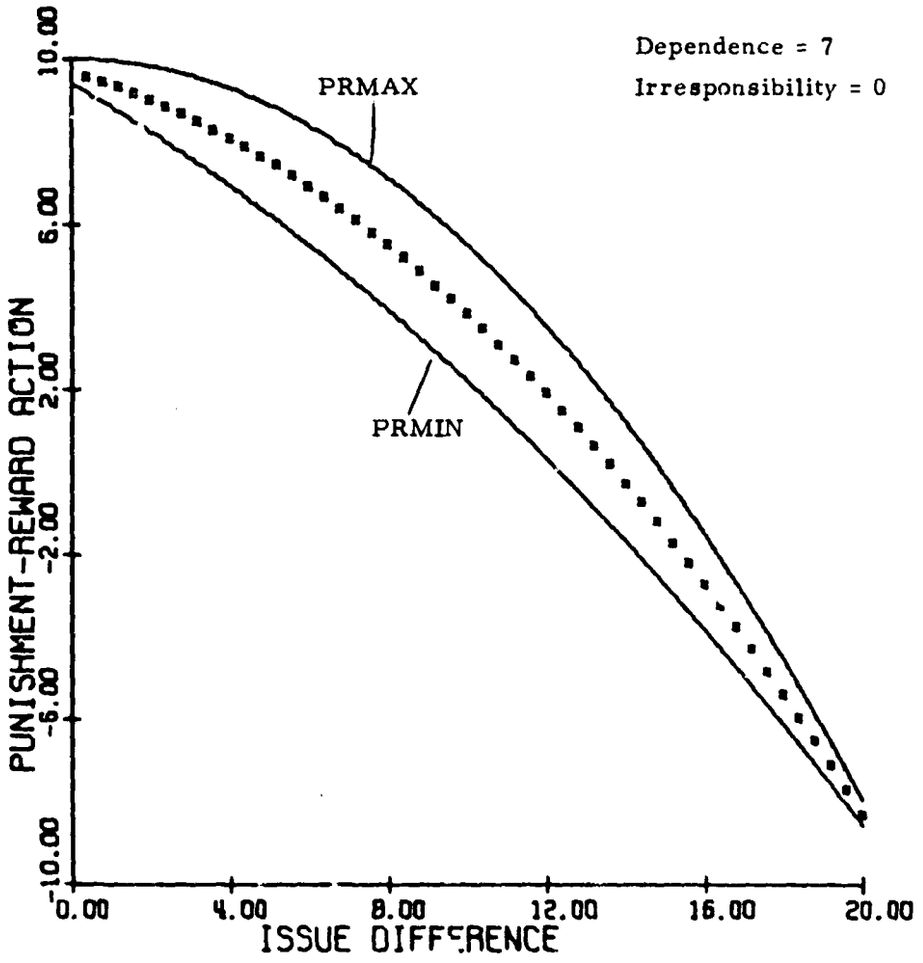

Figure 12. Distribution of PR's as a Function of Issue Difference

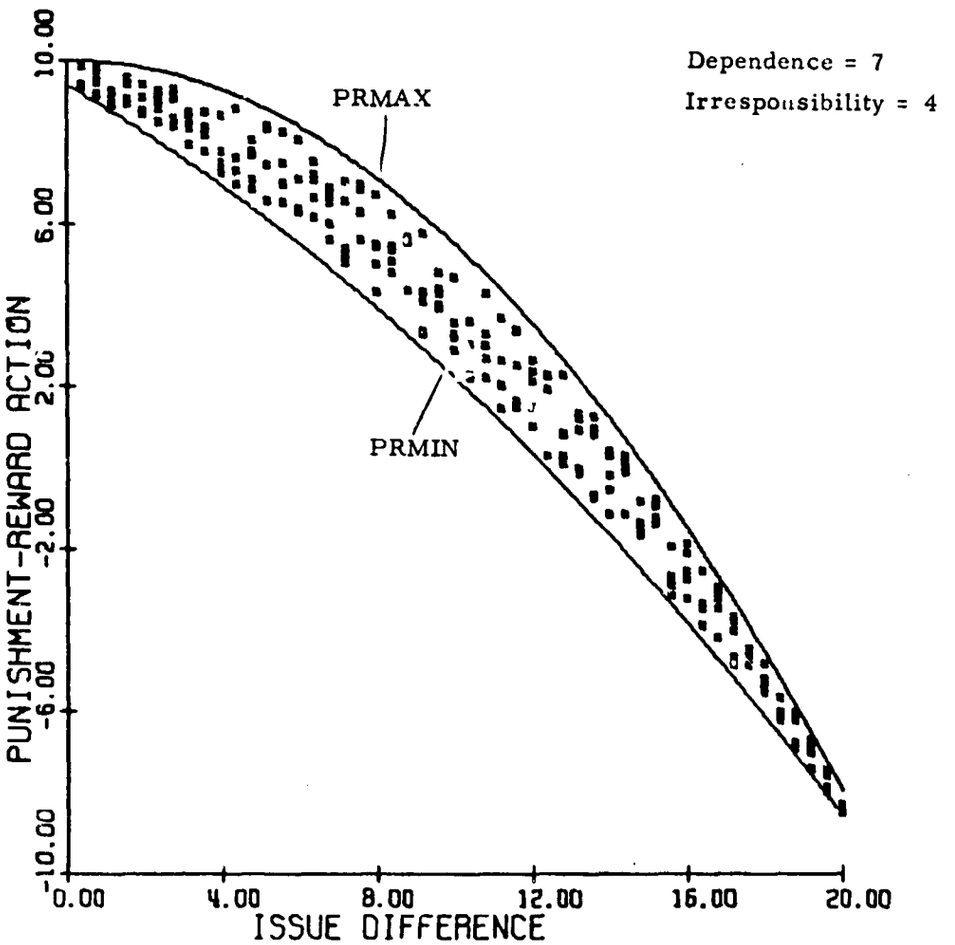

Figure 13. Distribution of PR's as a Function of Issue Difference

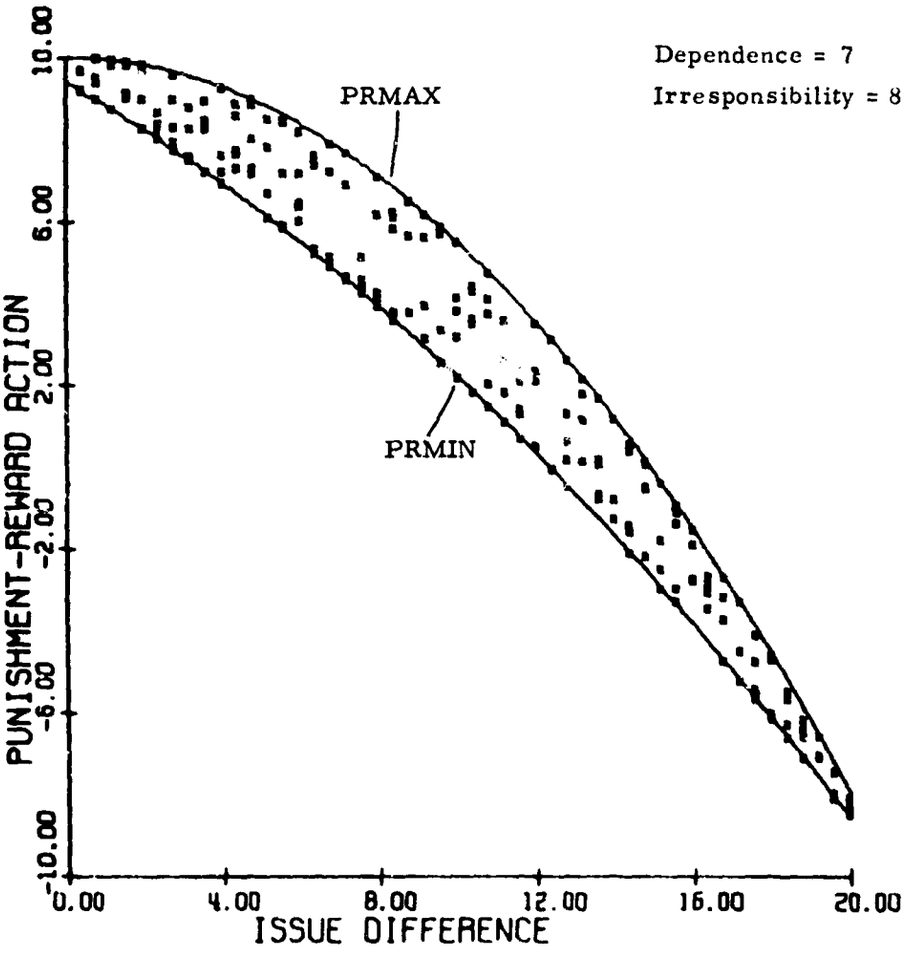

Figure 14. Distribution of PR's as a Function of Issue Difference

Computation of Issue Position Changes

Since PRINCE is centered on the U.S. foreign policy-maker, it is designed to compute new issue positions for the other nations only for those issues of interest to the U.S. (i.e., those issues for which the U.S. salience is greater than 0). In reconsidering its position on an issue, a PRINCE nation will respond to the state of the world as defined by the attitudes of the PRINCE nations toward each other, and their positions, power, and interest in the issue. Computation of a new issue position for nation I is based on the following decision rules:

- Nation I will move toward a weighted average of the hypothetical issue positions of the other nations. The hypothetical position for nation J on issue M is computed from the following:

  If (POS(M,I) - POS(M,J)) > 0, PP = POS(M,J) + IDF

  < 0, PP = POS(M,J) - IDF

  where PP is nation J's hypothetical position on issue M, and IDF is computed from the following equations:

  Let S = SAL(M,I)

  A = AFFCT(I,J)

  IF $S<5$, $IDF = -.2S^2 + \frac{8(10 - A)(S^2)}{400} + .10$

  If $S>5$, $IDF = -.2S^2 + 2S - \frac{(A - 10)(.4S^2 - 4S + 20)}{20}$

  The weighting factor used in computing the average of these hypothetical positions is obtained from,

  $$REF = \frac{|AFFCT(I,J)| + |AFFCT(J,I)| + SAL(M,J)}{SAL(M,I)}$$

  If this factor is positive, then nation J is considered by nation I to be a "positive reference group." Conversely, a negative value represents a "negative reference group" for I.

(1) The magnitude of the change by nation I toward (or away from) J's position on an issue is proportional to the degree of friendship (or hostility) felt for J by I.

(2) Nation I is more likely to move on issues of high salience to J.

(3) The magnitude of a nation's move on an issue is proportional to the importance of the issue to it.

These last two propositions are concerned with the salience of an issue to a nation. In this context, "salience" refers to the proportion of the population of the country interested in the issue. Low salience implies that the issue is of concern only to officials specifically charged with the foreign policy matters. There will be only small changes in a nation's positions on these issues. Where salience is high, the issue is of concern to wide-spread elements of the state, and, in such cases, a given level of attention by other nations is likely to produce much greater shifts in issue positions.

Computation of Attitude Changes by Nations

Although a principal reason for carrying out PR actions is to persuade (or to force) a nation to change its position on an issue, there is no direct relationship between patterns of PR actions and issue shifts. That is, a PR sent from one nation to another, even though it is related to a specific issue, will not directly change the target nation's position on the issue. Each PR act will, however, alter the opinion, or attitude, of the target nation toward the actor.

The amounts of change in the target nation's attitude caused by a given PR is determined by:

- the salience of the issue to the target nation,

- the ratio of the actor's power on the issue to the target nation's power, and

- the total number of PR acts directed by the actor toward the target during the current cycle.

Specifically, the change in the attitude of nation I toward J as a result of a PR related to issue M is computed from:

$$A = PR \times SAL\ (M, I) \times \frac{POW\ (M, J)}{POW\ (M, I)} \times N$$

when

A is the change in I's attitude toward J
PR is the value of the PR acts directed by J toward I
SAL (M, I) is the salience of issue M to I
POW (M, J) [POW(M, I)] is the power of J [I] on issue M
N is the total number of PR acts directed toward I by J during the current cycle.

The total attitude change by nation I is the sum of changes due to the individual acts.

However, the new attitude, or opinion, is constrained to be within the range (-10 to 10).

DOMESTIC POLITICAL MODEL

Functions of this Model

This sub-model computes U. S. domestic political reactions to the results of the player's economic decisions (restrictions on flows and aid grants), positions on the issues, and political actions toward the other PRINCE nations during the current cycle of play. These reactions are expressed by eleven Policy Influencing (PI) groups that represent the partisan factions, special interest groups, and bureaucratic forces within the political structure of the United States.

Reactions of these PI groups to the player's actions are aggregated into responses in three areas:

- Economic:
  responses to the restriction and aid levels set by the U. S.

- International Political:
  responses to the foreign policy actions directed by the U. S. toward the other PRINCE nations.

- Issue Positions:
  responses to the U. S. positions on the 16 critical international issues.

Overall support by the U. S. public is expressed by the estimated percentages answering "YES," "NO," and "NO ANSWER" to the question: "Do you agree with the general policies of this administration?"

Responses to Economic Decisions

The general propositions underlying the computation of responses to restriction and aid levels are:

- A PI group will support economic acts favoring nations toward which it has a friendly attitude (and conversely, will not support favorable actions toward a nation to which it feels hostile), but
- The support level will be modified by the opinion of the PI group toward restrictions and aid in general.

The set of equations from which the responses are computed are given below:

$$A = [APOS(K) + PIAFF(K, I)]/3$$

If $|A| > 1$, $RA = A + A[\Delta AID]$

If $|A| < 1$, $RA = A + \frac{A}{|A|}[\Delta AID]$

where:

RA is the response of PI group K to aid given by the U.S. to nation I.

ΔAID is the change in U. S. aid to I from the aid given in last cycle of play.

$$B = [RPOS(K) - PIAFF(K, I)] / 3$$

If $|B| > 1$, $RR = B + B[RESTI(1, I)] [\Delta RES]/60$

If $|B| < 1$, $RR = B + \frac{B}{|B|}[RESTI(1, I)] [\Delta RES]/60$

where: RR is the response of the PI group K to the setting of a restriction on flows from nation I

ΔRES is the change in the restriction from the last cycle of play

The aggregated response of group K to economic decisions is the average of its responses to aid and restriction levels and is scaled to lie between -10 and +10.

Responses to International Political (PR) Acts

The PI groups' reactions to each PR act by the player are based on the following factors:

- the attitude of the PI group toward the nation that is the target of the U. S. action
- the position of the PI group on the issue that is the subject of the U. S. action
- the position of the U. S. on the issue
- the position of the target nation on the issue
- the type of PR act preferred in general by the PI group.

The general propositions underlying these computations are:

- The closer the U. S. PR act to the preferred PR act of the group, the more positive the PI response.
- A more favorable response will be generated by positive PR acts directed to nations toward which the PI group feels friendly and by negative acts to nations for which they have a hostile attitude.
- A more favorable response will be generated by positive acts toward nations whose position on the issue is close to that of the group.

The sets of equations from which these responses are computed are given below:

$$P1 = NPRPOS(K) - IACT$$

$$P2 = PLAFF(K, I) \times IACT/10$$

$$D = |PIPOS(M, K) - POS(M, 1)| - |PIPOS(M, K) - POS(M, I)|$$

$$P3 = D \times IACT/20$$

$$RP = \left[P1\,|P1| + P2\,|P2| + P3\,|P3|\right]^{1/2}$$

where:

RP is the response of the PI group K to a U. S. PR act (IACT) toward nation I on issue M

IACT is the type of PR act (-10 to 10)

The aggregated response of the PI group in the international political ares is the average of its responses to all of the U. S. PR acts during the current cycle.

Responses to Issue Positions

Responses to the issue positions of the U. S. are computed from:

$$RP = \left[POS(M, 1) - PIPOS(M, K)\right]\left[PISAL(M, K)\right]$$

where:

RP is the response of PI group K to the U. S. position on issue M

The aggregated response to the total U. S. issue position picture is the sum of the position differences, weighted by the salience of the issue to the group. It is scaled to range from +10 at a weighted difference of 0 to -10 at a weighted difference of 10, or greater.